

# The Mining Journal

## RAILWAY AND COMMERCIAL GAZETTE:

FORMING A COMPLETE RECORD OF THE PROCEEDINGS OF ALL PUBLIC COMPANIES.

No. 266.—VOL. X.]

London: Saturday, September 26, 1840.

[PRICE 6D.

**BLACK-JACK, OR CALOMINE MINES.**—Wanted to take on royalty, a mine or mines containing black jack or calomine. Parties having such to let, may send particulars of the same to Mr. Samuel Bordell, coproagent, Cannon-street, Birmingham. Letters post-paid.

**EXTENSIVE AND VALUABLE MINING MACHINERY and MATERIALS** at the MARAZION MINES, Cornwall, FOR SALE.

**M. R. JOHN THOMAS** will offer FOR SALE, by PUBLIC AUCTION (without reserve), on Wednesday, the 20th day of September instant, at Ten o'clock in the forenoon, at WHEAL VIRGIN, WHEAL MAID, and WEST WHEAL BODNEY MINES, situated in the parish of St. Hilary, Cornwall, the whole of the MACHINERY AND MATERIALS thereon, viz.—

One 60-inch Cylinder Steam Pumping Engine (stroke 9 feet by 8), with Cast iron Bob, and 3 Boilers complete.

One 15-inch ditto, with Boiler, &c., complete.

One 24-inch Steam Stamping Engine (stroke 28 heads), adapted either for stamping or drawing, with Cage Axles, Boiler, &c., complete.

One 16-inch Steam Whim, with Boiler, &c., complete.

A Patent Calcinating Machine (by Brunton).

One Crushing Machine, with 24-feet Water-Wheel (2 feet on breast), with all the necessary apparatus complete.

A 50-feet Water-Wheel (24 feet on breast), with Iron Axles, Centre-pieces, Brasses, &c.; Cast-iron Balance-bob, with Brasses, Gudgeons, &c., complete; 2 other Balance-bobs; 2 Capstans and Shears; about 130 fathoms 12 inch Capstan Rope.

30 fathoms 9-inch Pump, 14-inch Pump,

60 ditto ditto 18 ditto,

60 ditto ditto 12 ditto,

60 ditto ditto 11 ditto,

60 ditto ditto 9 ditto,

60 ditto ditto 8 ditto,

60 ditto ditto 7 ditto,

14, 13, 12, 11, 9-inch, and other Windhoses; Plunger Poles of different sizes, with Cases, Stamping Boxes, and Glands; Working-pieces, H and Top Door-pieces; Doors, Clackseatings, &c., to match; 80 fathoms 12-inch Oak and Deal Main Rods, with fagoted Iron, Strapping Plates, and Bolts to suit; 30 fathoms 10-inch ditto, with ditto; a quantity of Whim Chain of various sizes; 70 fathoms of 2 and 14 inch Pump Rods, with Joints, &c.; several hundred fathoms of Ladders; a large material Beam, Scales, and Stand; Ore Scales, Beams, Stands, and Weights; Horse-Whim, Shaft Tackle, &c.; a variety of Whim Sheaves and Pulleys, Staples and Glands, Planch Bolts and Pins, Bucket Joints, Yokes, Whim Kibbles, Miners' Tools, Screw Stock, Screwing Tools, 42 and 46-inch Smiths' Bellows, Anvils, Vices, with a quantity of other Smiths' Tools, New and Old Iron Frames, Baddles, Keives, Shovels, New and Old Brass and Iron Seives, and all other requisites for dressing Tin, Miners' Chests, Barrows, Launders, Large Bell and Frame, Junk, Brass, with a quantity of Timber, in whole, half, quarter pieces, and Planks, Wood Sheds, Slate and Tile Roofs, and sundry other articles, too numerous for the limits of an advertisement.

The whole of the above are in good condition, and well worth the attention of miners and others, and may be viewed by application to the agents on the mines.

Also, on the same day, the MACHINERY AND MATERIALS of the CRAB MINE will be offered for SALE, in ONE LOT, comprising a 60-inch Cylinder Steam Pumping Engine, with 3 Boilers; 100 fathoms of 14, 12, 8, and 7-inch Pumps, in Lifts complete; 50 fathoms of 12-inch Oak and Iron Main Rods, with Strapping Plates, Pins, &c.; 60 fathoms of 6-inch ditto, with ditto; 80 fathoms Horizontal Rods, Pendulums, Stands, &c.; Capstan and Shears, Capstan Rope, 2 Horse Whims, Timers', Smiths', and Dressing Tools, Wood Sheds, Slated and Tiled Roofs, and other materials belonging to the mine.

Likewise, in ANOTHER LOT, will be offered for SALE, all the MACHINERY and MATERIALS belonging to EAST WHEAL RODNEY MINE, consisting of a 46-inch Cylinder Steam Pumping Engine, with two Boilers, complete; 2 other Balance Rods, Capstan and Shears, Capstan Rope, two Horse Whims, Whim Chains, about ninety fathoms of 11, 9, and 6-inch Pumps, in Lifts, complete; fifty fathoms 10-inch Main Rods, with Strapping Plates, &c., Timers', Smiths', and Dressing Tools, Iron, Sheds, Roofs, and all other Materials belonging to the mine.

The last-mentioned Mines are now in course of working, and the Machinery and Materials may be viewed, and catalogues thereof seen, and any further information obtained, by application to Capt. William Blight, at Marazion; to the Agents, on the Mines; or at the Auctioneer's offices, North Parade, Penzance.

Penzance, September 8.

LEAD MINES, in the County of Clare, Ireland,

**TO BE SOLD, BY TENDER**, with all the Machinery and Materials, the whole being in complete working order, and of the newest construction. The mines are in a regular course of working, and have produced large quantities of Lead ore, holding an unusual proportion of Silver. Their present state offers great inducements for further trial, as likely to lead to new and valuable discoveries.

**BALLYHICKEY MINE**

has produced, within the last few years, Lead ore to the amount of between £40,000 and £50,000 in value; the Ore being of the richest quality, and the Lead made from it yielding 14 oz. of silver in the ton. This mine has a Steam Engine 17-inch diameter of cylinder, with Crushing-mill attached, and thirty fathoms of 7-inch Pumps. The other articles include a Whim, Shears, Capstans, Ropes, Dressing Tools, &c., also excellent Buildings, Shops, &c., and sundry other buildings of every kind.

**KILBRICKEN MINE**

is situated about one mile from the former, and is distinguished by the extraordinary proportion of Silver contained in the Lead produced from the ore, which has averaged about 140 oz. in the ton of Lead, so that the ore has sold at between £10 and £40 per ton. This mine is now in a course of trial, which may be pursued at a moderate expense, and holds out prospects of further valuable discoveries. It is furnished with a steam-engine, 20-inch diameter of cylinder, 40 fathoms of 10-inch pump, capstan, shears, dressing tools, &c., also superior buildings of every kind.

These mines are situated near Quin, and within a short distance of the town of Ennis, and the port of Clare; and may be inspected and any information obtained respecting them, on application to P. Meadows Taylor, Esq., Ballyglass, near Quin, or to Captain John Paul, at the mines.

Tenders, containing an offer in one sum for the mines (of which immediate possession may be had), may be addressed to John Taylor, Esq., Coed dd, near Mold, Flintshire, on or before the 5th of October next; after which an immediate communication will be made to the highest bidder.

London, Sept. 12.

COLLIERY.

**TO BE LET, that well-known COAL-FIELD, in the Lands of Sir George B. Prescott, Bart., in the township of Ewloe, parish of Hawarden, county of Flint, called or known by the names of Mount Pleasant Farm, Blinlly, and Wood; Hollins' Farm, Old Hall Farm, Wood-lane Farm, &c., containing 190 acres, or thereabouts, with a Tram Railway from the pit's mouth to one on the Aston Estate, which terminates at the Aston Wharf, on the river Dee. This coal has been proven, and worked in part by Messrs. Leach and Co., and by Messrs. Smalley, but which is now out of lease. There is an engine and bye-pit down to that very superior coal that lies below the main coal.**

For further particulars apply to Capt. Cole, Aston Hall, near Hawarden, and to Mr. Henry Buley, land and mineral surveyor, Wolverhampton, where plans and sections of the colliery may be seen.

N.B.—There are good roads for carriage to Liverpool and Chester, independent of water conveyance to those places; and when the railway to Holyhead is completed, further facilities for conveyance will be obtained.

CARMARTHENSHIRE.

**TO BE LET, on LEASE, all those SEAMS of ANTHRACITE, COAL, and BRONZE, lying under the several farms of Myddleseyfach and Park Head, containing, by admeasurement, 221 acres, or thereabout; there are several veins of from about three to nine feet in thickness, all of which cut very large. The stratification under this property has a very moderate dip, which is a great advantage in working to a profit. The Llanelli Railroad passes through part of this property, and is now ready to convey any quantity of coal that might be worked to the port of Llanelli—distance about 1½ miles.**

For further particulars, and to treat for the same, apply to Messrs. W. and H. Williams, Land and Mineral Surveyors, Swansea; or J. G. Jeffreys, Esq., solicitor, Swansea.

**TO BE LET ON LEASE.**—All those SEAMS of BITUMINOUS and STEAM PACKET COAL, lying under the PERTHIE GLYBON ESTATE, situated in Taff Vale, within eighteen miles of Cardiff, and six of Merthyr Tydfil. There are several veins of from four to nine feet in thickness, all cutting large, and the stratification is very favourable to profitable working. The Glamorganshire Canal passes right through the property, and the Taff Vale Railway runs within fifty yards of it, so that this colliery will have the great advantage of a choice of transit, and the capabilities are to any extent, as to annual quantity and duration. The proprietor is desirous of embarking a considerable share of the capital necessary for outlay. For further particulars, apply to William Brough and Son, mineral surveyors, Neath, Glamorganshire.

**TIN-PLATE AND BOILER-PLATE WORKS.—TO BE SOLD.**—These newly-created works, the PRIMROSE TIN-PLATE AND BOILER-PLATE WORKS, situated on the Swansea Canal, eight miles from Swansea, in the immediate vicinity of Anthracite, Bituminous, and fire-burning coals; also, iron mines and limestone. These works consist of a complete set of houses, a forge, and a rolling-mill, worked by a water-wheel thirty feet diameter and twelve feet wide, and capable of making 300 boxes of tin-plate, or 60 tons of boiler-plate and sheet-iron, or from 200 to 300 tons of hot iron per week, and at a trifling expense, may be applied to rolling copper sheets and bolts. For particulars, apply to the proprietor, William Parsons, Priory Works, Swansea.—Letters to be prepaid.

N.B.—The trade supplied with boiler-plate and sheet-iron of every description.

**HALL'S PATENT HYDRAULIC BELT, OR WATER ELEVATOR.**—This important invention is at once simple and powerful. It consists of an endless woolen band, or belt, to which the velocity of 1000 feet per minute being given, a larger quantity than in the case of a common pump is raised and discharged in a uniform and continuous stream. The advantages of the Hydraulic Belt consist of simplicity and regularity, combined with economy and efficiency, and is peculiarly adapted to the raising water from great depths, and applicable to mines, coal pits, salt works, and all other purposes where pumps are required. It may readily be worked by manual, horse, water, or steam power.

Applications to be made, and further information to be obtained at the offices of Mr. Webb, 26, Great Marlborough-street, Regent-street, London.

**NEW METALLIC ROPE.—NEWALL'S PATENT.**—These ropes have been found, by experience, to possess very great advantages over every other kind of rope or chain for mines and railways. They are STRONGER, LIGHTER, CHEAPER, and MORE DURABLE. Arrangements are being made for adequately supplying the demand. Parties requiring such ropes are requested to make application to the patentees, R. S. Newall and Co.

Dundee, August 24.

**TO THE MINING AND SHIPPING INTEREST.**—Her Majesty's Royal Letters Patent, for Improvements, has been granted to ANDREW SMITH, engineer, Mill-wall, Poplar, and Princes-street, Leicester-square, for his improved method of making Ropes of Wire instead of Hemp, applicable to various purposes. The patent consists of improved methods of preventing oxidation, and combining Wires in such a manner that they are more flexible than any hemp rope of the same strength, and the appearance of the rope much improved. In consequence of the great strength of the material, it has been found by experiments made in her Majesty's Dockyard at Woolwich, by order of the Lord Commissioners of the Admiralty, that a two-inch Patent Wire Rope bore half a ton more strain than a seven-inch hemp rope. For instance—a hemp rope one hundred fathoms long, used in a deep pit, weighs upwards of a ton; a Patent Wire Rope, of equal strength, is only one third that weight—hence the difference of working or winding up the two ropes is found to be a saving of three-horse power by the use of the Patent Wire Rope, and 30 per cent. in price. The annexed scale of tests of Hemp and Wire Rope, along with the comparative sizes and weight, will at once be apparent—this rope has been in use upwards of three years.

**TESTS OF HEMP AND PATENT WIRE ROPE.**

Showing the comparative size and weight per fathom for equal strength.

Size of Hemp Rope.	Weight per fathom.	Size of Patent Wire Rope.	Weight per fathom.	Equal to a strain.
Inches.	lbs. oz.	Inches.	lbs. oz.	Tons. cwt.
3	2 4	12	1 4	9 10
4	3 15	12	1 9	9 10
5	6 9	12	1 14	6 15
6	9 0	9	2 2	6 15
7	12 3	9	3 9	8 11
8	14 3	9	3 10	9 18
9	19 6	9	4 1	15 6
10	25 0	9	7 1	24 6
11	30 0	4	11 6	29 3
12	36 0	4	15 12	35 4

The following test has also been made at the Chain Cable Proof House, at Withymoor, near Dudley, July 25, 1840, for which a certificate has been given by the proprietor of the machine.

(Signed) SAMUEL LEWIS.

To be incorporated by Act of Parliament.—Capital £200,000, in 20,000 shares of £10 each.

**STEAM-ENGINE.—WANTED TO PURCHASE**, a STEAM-ENGINE of about 40 to 50-horse power, with or without blast apparatus, for blowing two stacks at an ironwork, or the blast end of such engine complete, or blast cylinder and piston alone; new or second-hand—also, hot-blast apparatus for such an engine. Apply, by letter only (post-paid), stating price and full particulars, to Mr. Thomas, 75, Pratt-street, Camden-town, London.

**YORKSHIRE and LANCASHIRE CENTRAL AMERICAN LAND AND EMIGRATION COMPANY.**

EDWARD PARKINS, Esq., Chairman.  
Thomas Reynolds, Esq., Vice-Chairman.  
Alexander Oswald, Esq.

With power to add to their number.

SUPERINTENDENT OF THE COLONY.—W. T. Upton, Esq.

BANKERS.—Messrs. Wright & Co., 3 and 5, Henrietta-street, Covent-garden.

SOLICITOR.—R. B. Grange, Esq., 16, Buckingham-street, Strand.

London Office, 32, Great St. Helens, Bishopsgate-street.

The company's territory in progress of colonisation, between the navigable rivers Tinto and Plantain, in Victoria Province, Central America, is within fifty days' sail of the British Channel, and the Mail Steam Packets, to be placed on the West India station next year, will reduce the passage to twenty-one days.

The company's land is held by a grant from the Native King, who is protected by the British Government.

The government of the country is regulated by British Commissioners, under the direction of her Majesty's Superintendent of Honduras.

The following extracts give a brief but correct account of the country:—

Captain Wright, senior officer of his Majesty's naval force at Honduras, in a dispatch addressed in the year 1839 to Lord Castlereagh, then Colonial Secretary, uses the following forcible language in reference to this country:—"Any description I can give will fall very short of the actual fact, either as to the produce of the country, or the disposition and sincere affection of the inhabitants towards the British nation. No country enjoys more advantages from water carriage; for, besides nineteen rivers, which are navigable for small craft up to the very interior, a chain of lagoons line the coast, accessible at the mouths of different rivers. The climate is mild for these latitudes, and, being continental, not near so hot as the islands of the same parallel.

Captain Speer describes the country as full of large rivers, that run some hundred miles up to a fine and fruitful country, the soil producing every thing that usually grows in North America and the West Indies. *Caledonia Navigator.*

Captain Speer, after describing the country, says, "this is a small sketch of one of the finest and healthiest tracts of country in the world. It hath been in the possession of His Britannic Majesty's subjects upwards of 100 years, and is the only retreat for our people cutting logwood in the Bay of Honduras. If encouraged it will be a valuable settlement, and not liable to the ill consequences which change of climate has upon the European constitutions. \* \* \* experience dictates that men usually live to a greater age than in Europe."—*West India Pilot.*

The company are prepared to deliver land orders for sections, of 100 acres, &c., per acre.

Their vessels will leave for the colony in November and December.

Full information can be obtained by application to either of the agents, or the secretary.

**PHILANTHROPIC LIFE ASSURANCE, ANNUITY, AND ENDOWMENT SOCIETY, 43, WEST STRAND.**

To be incorporated by Act of Parliament.—Capital £200,000, in 20,000 shares of £10 each.

PRESIDENT.—The Right Hon. the Earl of MOUNTCASHEL.

VICE-PRESIDENTS.

Bir. George Sinclair, Bart., M.P.

Major-General Sir Patrick Ross, G.C.M.G. and K.C.H.

TRUSTEES.

Rev. Richard Burgess, Rector of Upper Chelsea.

Thomas Grissell, Esq., Belvedere-road, Lambeth.

Charles E. Layard, Esq., 7, Catherine-place, Bath.

Henry L. Layard, Esq., 3, Maheson-place

## PROCEEDINGS OF PUBLIC COMPANIES.

## MANCHESTER AND LEEDS RAILWAY.

The eighth half-yearly general meeting of this company was held on Thursday, the 17th inst., at the company's offices, Hunt's Bank, Manchester.

HENRY HOUDSBORTH, Esq., is the chair.

The company's seal having been affixed to the registry of proprietors, Mr. W. ENTWISLE read the report of the directors.

## REPORT.

Since the last half-yearly meeting the works had advanced with such rapidity as to enable the company to anticipate the time formerly announced for opening the entire line, which they now had the satisfaction of stating would be completed in the present year. That portion of the line, from the junction with the North Midland Railway, at Normanton, to Huddersfield, a length of 27½ miles, would be opened in the first week of October, and the remaining portion to Littleborough, a length of about nine miles comprising the Summit Tunnel and other heavy works, in the course of the following month. The portion of the Summit Tunnel, which remained to be finished on the 1st of September, was 160 linear yards, and there was little doubt of its completion by the time above named. The rest of the works presented no difficulty to their formation within the period specified. On that part of the line already open to the public, the works continued to be in a very satisfactory state, and the traffic for the half year ending the 30th of June last, had been such as to justify the most sanguine expectations for the future. In the Parliamentary estimate the number of passengers expected to be carried for various distances along the line, when open throughout, was 442,000 per annum, or an average of 36,833 travelling over the entire length, or about 11,000 passengers travelling one mile each; whereas the number actually carried in twelve months upon the part already open had been 693,577 over an average distance of eight miles each, which was equivalent to 5,384,616 per annum, travelling one mile each—thus showing that, in proportion to the length open, the expected traffic had been nearly doubled. Of the large number of passengers conveyed on this line, it would be gratifying to the proprietors to know that not one had met with any accident, nor had the company been called upon for any, even the slightest, compensation for injury to property committed to their charge. In addition to the above results already attained, the increase of traffic was to be taken into consideration, which the general experience of other railways had shown to result from an entire line of communication as compared with a partial opening. The balance of receipts over expenditure for the last half-year, as shown by the revenue account, submitted in detail to the meeting, was 10,432, 5s. 2d.; and the directors had the pleasure of observing, that a comparison of the passenger traffic during the last two months with the receipts during a corresponding period last year, showed an average increase of nearly 20 per cent. The disbursements during the half-year, ending on the 30th of June last, amounted to 44,352, 4s. 4d., making the total disbursements up to that period amount to 2,118,986, 1s. 7d. Of this sum 42,037, 1s. 6d. had been expended on account of the proposed junction line at Hunt's Bank—29,754, 2s. 6d. in surplus stock (chiefly land and buildings), and 48,170, 3s. 1d. in payment of interest on money borrowed—making the total payments coincide very nearly with the estimates furnished in March, 1839; and the directors believed that a further sum of \$6,000, to 100,000, would be required in order to complete their arrangements for working the entire line and branches. Such was the confidence of the public in the undertaking, that half of the entire capital stock only will be paid up by the shareholders, the other half being borrowed upon security by mortgage or bonds, and the effect of this will be that "every excess in the net receipts beyond 5 per cent. upon the whole amount of capital expended, will produce double that excess of dividends to the shareholders." Thus, for instance, half the capital being borrowed at 5 per cent., a net receipt of 7s. per cent. upon the whole would, after discharging interest, leave 16 per cent. upon the capital paid up by proprietors.

The directors intimated their intention, as soon as the main line of railway was completed, to construct three branch lines for which powers had been obtained in their act, and they also hoped to succeed by private negotiation in the formation of a branch line of about a mile and a half in length, to Heywood, a town containing 17,000 inhabitants. After making a very satisfactory arrangement entered into by the company with carriers, by which these parties would be furnished with wagons and locomotive power at a fixed rate, leaving them to manage their own business generally, as heretofore, the report referred to the junction line, intended to complete the chain of railway communication across the kingdom from Liverpool to Hull. Since the last half-yearly meeting, at which the Liverpool directors announced their sudden determination to postpone indefinitely, if not abandon altogether, the formation of that part of the junction line, no communication from that body had been received, and, after mature deliberation, the Leeds and Manchester directors unanimously recommended that the powers of the act for making the extension line be not allowed to expire unexercised. The directors were influenced in this decision by the improvements now taking place in the river Irwell, by which the navigation would be continued up to Hunt's Bank, and thus a means of communication for the conveyance of merchandise established between Liverpool and the towns on the railway, second only to those originally designed.

The report of the engineer, and also the statement of accounts containing the main facts referred to above, were afterwards read to the meeting.

The CHAIRMAN then addressed the meeting at some length, congratulating them upon the advanced state of the undertaking, which would be completed at an excess of about 300,000, over the amount authorised to be raised by the company's Act; but this sum included an expense of 75,000, in interest on loans, and 30,000, expended on surplus stock, which would hereafter be rendered available and profitable to the company. He then entered into a detail of the prospects of revenue from the goods and passenger traffic on the line, which, assuming the increase to be 40 per cent. less than that of other lines in operation, would yield an amount equal to 13½ per cent. on the paid-up capital. The chairman afterwards referred to the question of the extension line, and informed the meeting that since the report had been prepared a communication had been received from the Liverpool directors, expressing their anxiety to promote a junction, but stating that the Act of Parliament by which they were empowered to do so was not satisfactory to them. He then entered into a history of the whole of the proceedings, observing, in conclusion, that the Leeds and Manchester directors were disposed to meet those difficulties in every way that could conciliate an harmonious spirit between the two parties; but so long as the Liverpool Company declined to state in what those difficulties consisted, the board felt that they had but one course to pursue—that of carrying out the object detailed in the report, leaving to the Liverpool and Manchester directors to adopt whatever plans they might think proper to pursue.

In reply to questions by proprietors, the CHAIRMAN stated that the total cost of the whole undertaking, including the main and extension line to Hunt's Bank and the Oldham and Halifax branches, the interest on loans, engines, stations, &c., would not exceed 2,000,000.—JAMES WOOD, Esq., moved the adoption of the report, which was seconded by H. WALKLYN, Esq., and passed unanimously.—The directors were afterwards empowered by a resolution of the meeting to make such arrangements as they considered desirable for constructing a branch to Heywood.—Thanks were then passed by acclamation to the chairman and board of directors, after which the meeting separated.

## LONDON AND BIRMINGHAM RAILWAY.

From the 17th Sept., 1839 (the date of the general opening of the line), to the 31st of August, 1840, the passengers conveyed amounted to 1,230,595; the aggregate of miles travelled to 80,946,952—equal to 65 miles and 3-10ths for each passenger.

No case of death or fractured limb has occurred to any one passenger. One passenger was severely hurt on the head, on the incline between the Euston and Camden stations; and one, on the back, at the Coventry station. In both instances the parties recovered.

No engine has run off the rails, except in two or three cases when the points were set wrong at the crossings—which is now effectually guarded against by the present improved plan.

Every engine driver has the sole care of the engine which he drives, and is required to examine it carefully, and clean it thoroughly, after each trip.

The number of passenger trains running daily is twenty-eight.

One passenger engine broke an axle on the London side of Harrow, and another a few miles on the same side of Wolverton. A goods' engine, drawing nineteen loaded wagons, also broke an axle one mile from Watford; and all the three (being the only instances of broken axles) brought their respective trains in perfect safety to the Camden station.

The performance of the engines is as follows:—

Number of engines	1,613,595
Number of miles run since the opening of the railway	19,542
Average number of miles by each engine	41,332
Greatest number by any one engine	42,134

Number of miles run during the six months, from December 1st, 1839, to 1st June, 1840.

Passenger trains	18,535
Goods' trains	913
Total	42,448

Equal to number of journeys (of 111 miles):—

Passenger trains	5,438
Goods' trains	813
Total	6,251

Greatest number of miles run by any one engine

Number of tons conveyed one mile:—	18,547,902
Gross load—Passenger trains	8,000,000
Goods' trains	10,547,902
Total	18,547,902

Net load—Passenger trains

Goods' trains	8,000,000
Total	8,000,000

Average gross load per each journey of the engine (of 111 miles):—

Passenger trains	18,547,902
Goods' trains	8,000,000
Total	26,547,902

Average time performing the journey (of 111 miles) by the locomotive, passing, excluding stoppage at stations

2 hr. 27 m.

## SIR CHARLES LEMON'S MINING SCHOOL.

On Monday, the 14th inst., a public meeting of the friends of the Mining School was held in the theatre of the Royal Institution, at Truro, for the purpose of submitting the pupils at the school to an examination in a portion of their studies.

SIR CHARLES LEMON, Bart., M.P., is the chair.

The worthy chairman was supported by Professors Moseley and Hall. Persons containing the subjects of examination were handed round to the company, after which the CHAIRMAN said the first thing they had to do was to appoint a committee, and the reason why they adopted that plan was, that they were afraid that the boys would not get on very well before a meeting of this kind; and that they were therefore in another room where there would be less interruption. The names that had been suggested were Mr. Enys, Mr. Jos. Lean, Mr. Hockin, the Ven. Archdeacon Shepshanks, Mr. H. W. Fox, Mr. S. Moyle, and Mr. Lowe. The committee withdrew to another room, and sent questions to the professors, as did also several gentlemen in the theatre, which the students were required to solve. The questions having been read to the meeting, and the figures supplied by those present, they were then taken to the students. At two o'clock, the meeting adjourned for a couple of hours, while the pupils performed their labours.

At four o'clock, Sir C. LEMON again took the chair, and said that the questions that had been proposed and answered satisfactorily would now be read.

Professor HALL then read the following list of questions:—

The elevation of a tower is 80 degrees, but if the observer advances fifty yards in a direct line to its base, the elevation is found to be 40 degrees; find the height of the tower.

Find the number whose square root exceeds its fourth root by twelve.

Explain the method of finding the distance between two inaccessible points.

The earth's diameter being 7980 miles, a spectator at the height of 200 yards sees the light of a lighthouse in the horizon, the height of the lighthouse being twenty yards; find the distance of the lighthouse from the observer.

Find by Simpson's method the area of a curve line drawn freely upon paper.

Steam is admitted at a pressure of 20 lbs. on the square inch, the length of the stroke being six feet, and the steam is cut off at two feet; compare the quantity of steam expended with what would have been expended had there been no expansion.

Steam is admitted at a pressure of 34 lbs. per square inch, the stroke eleven feet, and the steam is cut off at one-fifth of the stroke, the diameter of the piston is eighty inches, the mass moved is 200 tons. To determine the greatest velocity of the piston and the velocity at eight feet of the stroke.

There is an excavation, 50 feet long, eighteen feet wide, twelve feet deep, to be removed to 100 feet, three pick men are required to two shovellers; required the number of barrow men and expense of work at 2s. per day.

External diameter of a fly-wheel twenty feet, internal diameter, thickness 3/8 of a foot, it revolves eight times in a minute; how high will it raise 100 lbs.

450 cubic feet of water run over a wheel forty feet high; how many cubic feet of water will this raise to the height of forty fathoms from top of fall, and how much is lost by taking it from the bottom, modulus 7.

Two balls weighing 1/4 cwt. each, are placed at the ends of a bar sixteen feet long, it is made to revolve eight times in a minute; what mean pressure is it capable of producing upon a punch working through quarter of an inch plate.

To determine the loss of work by the friction of the axis of a water-wheel, having given the height of the fall and the dimensions of the wheel, and the distance at which the work is applied, and supposing half the wheel to be filled with water.

There is an inclined plane, whose inclination is 30 degrees, it is of wrought-iron, and a cubical mass of wrought-iron, whose edge is six feet; what must the pressure, parallel to the inclined plane, be, and what must the least pressure be, to draw it up the inclined plane.

Let the mass of matter in the pithwork of a steam-engine be raised at the rate of 200 feet per minute, to find how high the body would ascend after the action of the engine had ceased—no friction.

A train weighing 100 tons, is drawn up an inclined plane of 1 in 90, by an engine which works at 20 horsepower; what is the velocity, including friction.

There were other questions proposed and solved by the pupils; but we have not thought it necessary to state them, as they were not equally difficult or practically interesting with the above.

SIR CHARLES LEMON then said, the judges had awarded books as prizes in the following order:—First prize, "Manufactures of Metals," to John Gulliver—second prize, "Moseley's Astronomy," to John Bain—third prize, "Somerville's Concourse of the Physical Sciences," to John Tredinnick—fourth prize, "Glass Blowing," to Edward Hookham (these had received instruction during two seasons); and for those who had attended only this year, the fifth prize, "Transactions of the Institution of Civil Engineers," was given to James Williams—and the sixth, "Phillips' Geology," to Henry Fox. The presentation of these prizes was accompanied by some prefatory remarks to each of the successful pupils, that were highly gratifying to them.

SIR CHARLES LEMON then rose and addressed the meeting to the following effect:—The subjects now brought before you do not form the whole of the instruction received by these boys; they have also made some progress in chemistry and mineralogy, under the able teaching of Mr. Prudeaux. But our time is short, and it was impossible to make the examination complete; therefore, Mr. Prudeaux has very kindly consented to postpone his subjects for the present, to make way for that which is more easily brought to the test of an examination in public. I can assure you, however, that the proficiency of the students in these subjects is creditable both to them and to their kind instructor. The examination is now over—and it remains for you to determine in what degree it is calculated to remove the doubts of those who are not entirely convinced of the value of such instruction as may be given in a school of mining and civil engineering—whether under the short and imperfect plan which I have been obliged to adopt, the subjects taught, and the problems now solved before you, have any direct and practical bearing on the leading interests of the country. Those of you who are fathers, and who are intent on bringing up your sons to follow your own honourable career, I would further request to ask yourselves this question—whether these boys, who will start in the race of life amidst many rivals and competitors, are not in possession of means which will give them a decided advantage over others of their class? With respect to the result of the present experiment, I will express no opinion; but with respect to the conduct of the students in whose hands that experiment has been placed, it would be injustice to be silent. They have worked nobly to make it successful; they have worked as if they felt the importance of their conduct, not only to themselves, but to their native country. It does not often happen that persons so young are entrusted with a public charge of importance; but, surely, if, by their exertions, the county should be led to adopt a plan by which the resources of science will be more freely and more generally applied to the working of our mines, and the mines themselves are rendered more capable of struggling against the fearful competition which has sprung up from foreign mines producing ores more abundantly, and those ores of much higher produce—if this should happen through causes originating with them, surely they will have exercised a beneficial influence on the destinies of their country; and it is a parlance exaggeration to say, that they may have been patriots before they are men. I say not that this result will follow immediately; but when they succeed, as they must succeed, to the highest station in their profession, and the question is asked whence they derived the advantages which have placed them there—the answer must be, from scientific education, obtained under the eminent professors, who have now put them in the way of knowledge and success. To these boys themselves I must say farewell—we shall meet, I trust, frequently, and they may be assured that it will always be my wish to render them every assistance in my power, and that their progress will be an object of deep interest to me for the remainder of my life. I must say farewell, also, to my two friends who sit on my right and left, the two professors, and Mr. Prudeaux. I know well how the personal sacrifices which they have made, and that, together with the wish of spreading the sciences which they cultivate, some personal consideration with respect to myself has entered into their motives, and have laid me doubly under obligations to them. I offer them my most grateful thanks; and though our engagement is now closed, I still entertain the hope that their connection with this undertaking is not finally dissolved, but that they will continue to look with interest on our future proceedings, and give us their assistance in the organisation and conduct of our college. To the three gentlemen who have allowed me to call them governors, I beg also to

## MINING CORRESPONDENCE.

## ENGLISH MINES.

HOLMBUSH MINING COMPANY.

Sept. 21.—I beg leave to inform you, in the 100 fathom level, west of the engine-shaft, the lode is about fifteen inches wide, and worth two tons, or 10s. per fathom. The new winze, under this level, is sunk to a depth of four feet, the lode being about sixteen inches wide, worth two and a half tons, or 10s. per fathom. In the ninety fathom level, west of James's winze, the lode is not so large as it has been; it is now about ten inches wide, and worth about one ton, or 7s. per fathom. In the ninety fathom level, west of Dennis's winze, the lode is much improved; it is now about twenty inches wide, and worth three and a half tons, or 30s. per fathom. In the eighty fathom, west of the engine-shaft, we have still to contend with the great cross-course; consequently, the progress making in this end is very slow. In the level, east of the engine-shaft, the lode is about eighteen inches wide, composed of mud, spar, with some stones of copper ore. In this level, east of Shelly's winze, the lode is small, about four inches wide, at present unproductive. The lode in the new winze, sinking under the eighty fathom level, is about two feet wide, and worth four and a half tons, or 40s. worth four per fathom. In the slopes, in the back of this level, the lode is two and a half feet wide, worth about seven tons of ore, or 60s. per fathom. In the seventy fathom level, slopes the lode is improved in size and productivity; it is now about twenty inches wide, worth about three and a half tons, or 30s. per fathom. In the sixty fathom level, south, on the lead lode, winze is about six inches wide, producing some good silver-lead ore. At this level, east of the engine-shaft, the lode is about twenty inches wide, composed of mud, spar, with some copper ore, but not rich. In the slopes, in the back of this level, the lode is about one foot wide, and worth about 15s. per fathom. The pitches still continue to look well.

T. RICHARDS.

WHEAL LEEDS MINING COMPANY.

Sept. 19.—In the eighty fathom level west the lode is fourteen inches wide, and good ore. In the eighty fathom level east the lode is two feet wide, kindly, but not rich. There is no alteration in the seventy fathom level east since last week. In the winze, in bottom of seventy fathom level east, the lode is eighteen inches wide, producing three tons three per fathom. The ground in the cross-course is not quite so hard. The tributes are working very well.

C. J. RICHARDSON.

TRETOIL MINING COMPANY.

Sept. 21.—I beg leave to hand you my report on the operations of this mine from the 14th to the 21st inst. The lode in the engine-shaft is from one to two feet wide, and contains a little ore, ground favourable. The lode in the thirty west is from twelve to eighteen inches wide, producing dressing work, not rich, but opening tribute. The lode in the thirty east is from eight to twelve inches wide, but unproductive at present. The lode in the twenty east is from eight to twelve inches big, producing saving work, and has a very promising appearance, very similar to the level above. The twenty west is still cross-cutting for John's lode. The lode in a winze, in the bottom of twenty west, is about twelve inches wide, producing good work. The lode in the ten east is about twelve inches wide, yielding good work. The adit east is unproductive—lode disordered. We have intersected a lode in cross-cut south-west of John's, which we suppose to be Tregallais lode; it is about twelve or fourteen inches big, carrying a lead on the south part from one to two inches wide, rich in black ore; the other part of the lode is poor.

JOHN BRAY.

TREBLEIGH CONSOLS MINING COMPANY.

Sept. 19.—In Carhooe shaft the lode continues to look well; it is large and grey throughout, worth 15s. to 18s. per fathom in sinking. We are working every part of the mine that demands our attention, except driving the forty fathom level, which has been suspended a few weeks for reasons assigned in a former letter—this we shall resume next setting-day. We account for the falling off in the quantity of the ores sampled last week, by the tributes in the principal pitches having taken them under a fair proportion, and not working so justly as they ought; also their being prevented working one week by the water being in whilst changing the lift, consequently the sixty-three tons were broken and drawn in three weeks. The pitches now in operation cannot be thought poor, and the ensuing sampling, compared with the tributes, will justify our expectations of an increase.

W. SINCOCK.

WEST WHEAL JEWEL MINING ASSOCIATION.

Sept. 21.—In the fifty-seven cross-cut south the ground is rather harder than last reported. The forty-two west, on West Jewel lode, is fifteen inches wide, spar, yellow ore, &c. The forty-two east, on this lode, continues to improve; it is two and a half feet wide, worth 10s. per fathom. In the forty-two cross-cut south the ground is more favourable. In the thirty cross-cut south there is more water proceeding from the cross-course; we expect we are near Polroda lode. The twenty west, on south lode, is one foot wide, worth 11s. per fathom. The deep adit west, on this lode, is worth 9s. per fathom. The south adit shaft is down thirteen to fourteen fathoms under the forty-two fathom level. We sampled on Wednesday last eighty-one tons of ore, which we estimate by assay will bring 700s. Our general prospects have for some weeks past been improving.

S. LEAN.

TINCROFT MINING COMPANY.

Sept. 22.—I have much pleasure in being able to report to you of a pretty general improvement in the appearances of this mine since my last. The lode in the engine-shaft has improved for tin; it is worth at present about 40s. per fathom, and likely still to be better. The lode in the 142 west is about two and a half feet wide, worth for tin and copper about 20s. per fathom, and very promising. The east end of the same level is producing but coarse quality tin stuff at present, yet very promising. The lode in the 130 east is about three feet wide, half the width good work for tin, worth about 30s. per fathom. The slopes in the back of this level continue to yield excellent work for tin, with some good grey copper ore, worth about 20s. per fathom, and stopping at 31s. per fathom; from this level, and the back of it, we are likely to raise a great deal of good tin stuff. The lode in the 100 end is very large, producing saving work for tin, and very promising; in this level, we find we have a large portion of the lode standing in whole to the north of the level; we have now commenced driving in that direction, to ascertain its size and quality. The 90 end has very much improved for tin in the last few days. I consider the end to be worth at present from 25s. to 30s. per fathom, and there is every reason to believe it will still improve as we advance, the appearances in every respect being the same as in the eighty-one, before we cut into the course of tin. We are now driving through at that level, where the lode is about three feet wide, and will produce from a ton to a ton and half of tin per fathom. The seventy-two end continues much the same as for some time past, yielding tin stuff of fair quality. There has also an improvement taken place in several of our tin pitches. The copper ore pitches remain stationary. We shall sample to-morrow about 100 tons of copper ore, of about the same quality as last. Nothing new has taken place in the north mine worth noticing.

WILLIAM PAUL.

TAMAR SILVER-LEAD MINING COMPANY.

Sept. 21.—At the 135 fathom level the lode is about eighteen inches wide, producing a small quantity of silver-lead ores. In the winze sinking from the 125 fathom level, the lode is small and poor. At the 115 fathom level the lode is two feet wide, intersected with branches of silver-lead ore. At the 105 fathom level the lode is one foot wide, yielding some promising work. At the ninety-five fathom level the lode is two feet big, carrying a rich lode of ore. At the eighty-five fathom level the lode is still in a disordered state. At the sixty-five fathom level the lode is two feet wide, producing saving work. We expect to sample, on Wednesday next, about fifty-five tons of silver-lead ore.

MARK JAMES.

UNITED MILLS MINING COMPANY.

Sept. 22.—Adit End East—No alteration in this end since last week. Adit End West—in this the lode is eighteen inches wide, producing but little ore. Ten Fathom Level—Nothing done in this end for the past week; the men have been employed with the sumpmen changing the lift in Williams's shaft. Thirty Fathom Level—The lode in this winze is three feet wide, and two feet good ore. Thirty-six fathom Level—in the eastern end of this level the lode is small and poor. In the western end the lode is 2 ft. 6 in. wide, grey throughout, but of low quality. In the winze the lode is three feet wide. Forty Fathom Level—in driving east of eastern shaft the lode is three feet wide, good ore. In Webber's winze the lode is four feet wide, grey throughout, but coarse in quality. West of James's shaft the lode is two feet wide, with stones of ore. Nettle's Winze—The lode in this winze is four feet wide—two feet on the north part good ore. Slopes west of this winze lode three feet wide, grey throughout. Diagonal Shaft—in this shaft the lode is 3 ft. 6 in. wide, producing a small quantity of ore. Eastern Shaft—Lode three feet wide, with a small branch of good ore on the north part. Fifty Fathom Level—in driving east at this level the lode is 2 ft. 6 in. wide—one foot on the south part producing ore. In the western end the lode is four feet wide—2 ft. 6 in. ore of a fair quality. Williams's shaft—No ground explored in this shaft for the past week; the men have been engaged changing the bottom lift. We have taken up the 14-inch, and put down 16-inch pumps, in consequence of nearly all the water being at the bottom of the shaft.

C. PENROSE.

GREAT WHEAL CHARLOTTE MINING COMPANY.

Sept. 19.—We beg to hand you the following report of the present appearance, and future prospects of this mine. The lode in the seventy-two fathom level east is five feet big, yielding stones of ore, kindly, but not rich. The lode in the seventy-two west is from four to five feet wide, producing three tons of ore per fathom. The lode in the rise, in the back of the seventy-two west of engine-shaft, is three feet wide, yielding two tons of ore

per fathom. The lode in the sixty-two west is from six to eight feet wide, worth from seven to eight tons per fathom, at from 4s. to 5s. per ton. The sump shaft is down 7 fms. 1 ft. below the seventy-two. You will see from the ores we sampled on Tuesday last, that we are increasing our returns, and we have every prospect of still further increasing them. During the last three months we have driven upwards of 100 fathoms, through a large, soft, and productive lode in the sixty-two fathom level, west of engine-shaft; and as soon as we have the winze in the bottom of the sixty-two, which we expect to do in a few days, we shall be able to set many more labourers to work on the very lode we have opened in the sixty-two fathom level.

REDMOOR CONSOLIDATED MINING COMPANY.

Sept. 21.—Respecting the prospects of these mines, they continue without material alteration, consequently, I have but little to report. The forty fathom level cross-cut is driven 2 fms. 3 ft.—ground not quite so favourable. In driving east, at the thirty fathom level, the lode continues large, but poor in quality. The tribute pitches, working in the bottom and back of the twenty fathom level, on the great copper lode, are producing ores of good quality. The lodes in shallow adit level, south mine, is still in a disordered state—ground much the same, rather spare. Hurl Down adit shaft is sunk 12 fms. 1 ft.—ground favourable.

S. HARPER.

## FOREIGN MINES.

UNITED MEXICAN MINING ASSOCIATION.

Guadalajara, July 17.—I beg leave, as usual, to refer to the enclosed duplicates of my last letters to the court, dated the 19th and 20th ult., and forwarded via Mexico, per packet *Tyrone*, and of the enclosures therein referred to; and, at the same time, to hand to you the following documents in original, &c., &c.

*Mines of Rayas.*—The improvement mentioned in my last letter to the court, as having taken place in the workings of Purisima, has not only maintained, but extended itself to others in San Cayetano, which, together with two new points of promising character, San Paulino and "Espíritu Santo" recently laid open, have tended to give the mine generally a more cheerful appearance than for some time past, and to hold out hopes of more extensive and permanent returns in future. The produce of picked ores has increased considerably since my last report, the two weeks ending the 11th inst., having yielded 1441 cargas, or 720*s* weekly, of rather better quality than the preceding extraction, and the sales of ore on joint account with business, have also improved in amount, during the same period. Of these, there have been two made, which yielded the gross amount of 87042 6, or 87921 3 weekly. Upon the estimate formed of the picked ores, adding thereto the portion corresponding to the mine of said sales, it would appear that the general result of operations, in the aforementioned period of two weeks, is about 8700 weekly surplus, over and above all expenses at the mine, and for the reduction of the ore; being 8700 per week more than in the two preceding weeks ending the 27th ult. The accounts of this mine have been closed, together with the general accounts of the management, for the first six months of the present year. The amount of realised profits of Rayas is £51,255, and the portion of the Arista indemnity £7208 5 4 recovered during the same period, and belonging to Rayas, added thereto make a total of £60,223 5 4, of which £4,623 4 6 has been appropriated to the association in pursuance with existing contracts. The usual statement of outlay and returns, in respect of the mine herewith enclosed, commences with the balance of £51,255, given by the accounts closed to the 30th ult., and adding thereto the amount of ores at the hacienda of Barrera, and at the mine, of which new valuations have been made, the estimated surplus on the 11th inst., the last expired week, is shown to be £111,589 6 1.

*Remittances.*—The Tampico conducta, of the 27th ult. from hence, left San Louis Potosí on the 4th inst., and, it is expected, will reach its destination on the 20th, and in time for the return May packet. Messrs. Manning and Marshall have remitted to Messrs. Jolly and Baker a bill for £6000, which will enable the latter to make a shipment of £35,000, less the usual charges, by first packet, to the chairman of the court, as alluded to in my last letter. Statement showing the outlay and returns, in respect of the mine of Rayas, from the 1st of January to the week ending the 11th of July, inclusive, and the value of ore on hand:—

Amount of realised surplus, as per accounts of 27th June ..	£51,255 0 0
Outlay from 1st to 11th July ..	£11,171 1 3
Returns during the same period ..	7,366 7 4 — 3,804 1 7
Excess of returns ..	£47,450 6 1
Value of ores at the hacienda of Barrera ..	£56,017 0 0
At the mine ..	8,122 0 0 — 64,139 0 0
Total surplus ..	£111,589 6 1

J. N. SHOOSHER.

*Note.*—A bill of lading has been received for £32,996, shipped by the *Seagull* packet, arrived this day.

London, Sept. 25.

Report on the State of the Workings of the Mine of Rayas.

July 16.—Three of the four weeks that have elapsed since the last report contained only five work days each.

*La Purisima.*—The appearance of the lode in the end of Santa Margarita continues favourable, although no ore is met with. The end of Santa Victoria is advancing on a body of ore, of considerable breadth, and of a very good quality. The ore in the lower part of this body are found in a band of a very favourable formation (Jabon), and those in the upper part are in very solid ground. The roof of this name is producing a fair quantity of the common classes. Nothing worthy of extraction has been left about the late communication with Mellado. In the cross-cut, mentioned in the last report, a pit (San Paulino) has been opened on the bands of ore that were cut through—some rich threads were found at first, which have, however, been gradually disappearing, and at the present moment there is little else than the common classes of ore, and these are found principally between the centre and the north-west side of the pit. The cross-cut is being continued, and nothing worthy of particular notice has been observed. Sixteen pair of barrows are employed in La Purisima by day, and thirteen pair by night. The weekly produce of ore in the rough state has averaged 682 cargas, which, when picked, have yielded 361 cargas, calculated to be worth £3500, exclusive of reduction expenses.

*San Cayetano.*—The pit of Jesus is producing a fair quantity of the common classes of ore, amongst which some narrow threads and small bunches, of better quality, occasionally present themselves—these are, however, very variable. Another bunch of rich ore was laid open in the end of Jesus, but it only lasted a couple of days. The general produce of this working is similar to that of the pit. The extraction from the end of San Francisco is inconsiderable. The produce of the end of San Francisco is very uncertain; bunches of rich ore suddenly present themselves, and as suddenly disappear entirely. Between the two pits of La Luz, a new pit, of a reduced size, is being opened on the bands of ore that were cut through—some rich threads were found at first, which have, however, been gradually disappearing, and at the present moment there is little else than the common classes of ore, and these are found principally between the centre and the north-west side of the pit. The cross-cut is being continued, and nothing worthy of particular notice has been observed. Sixteen pair of barrows are employed in La Purisima by day, and thirteen pair by night.

*Los Reyes and Los Animas.*—In the pit to the south-east (San Pablo), the ore which were being followed up, both on the run and inclination of the lode, have been very scarce latterly, and of rather inferior quality. Those in the other pit (Santa Rita) are of better quality, although they are by no means abundant. The three ends of Animas vary little in their produce—the lode continues of its usual breadth; the best ore are found in the centres of the workings, and the common classes, above and below, are scattered over a large surface. The pit of Animas has just been communicated with the old canon of this name. Eighteen pair of barrows have been employed in Los Reyes and Los Animas by day, and fifteen pair by night. The weekly produce of ore in the rough state, from San Cayetano, Los Reyes, and Los Animas, has averaged 1883 cargas, which, when picked, have yielded 817 cargas, calculated to be worth £1047, exclusive of reduction expenses. In following the narrow thread of ore in the end of San Juan Bautista no variation in the lode has been observed. The ore varies neither in quantity nor quality. A single pair of barrows work here occasionally.

*San Andrade.*—No great progress has been made in this end since the last report. The ores are rather scarce, but still of good quality, and the direction they at present seem to take is between the run and head of the lode. The produce has averaged 75 cargas per week, which may be calculated to be worth £60, exclusive of reduction expenses.

*San Miguel.*—The extraction of ore from the points of investigation on this side of the mine, has been the same as mentioned in the last report, viz., a weekly average of 21 cargas, calculated to be worth £109. The ends in the pits of Díaz Padre are advancing on rather ordinary ores. In an end to the north-west of the commencement of the pits and cross-cut of Díaz Padre, a cross-cut (Espíritu Santo) has been opened towards the upper part of the lode. The working was commenced on a very narrow band of common ore, and after advancing a short distance, another band of rather more breadth, and containing some ores of very rich quality, was laid open, but these hitherto have been very scarce. There have been four sales of ore on joint account with the barrows, amounting in all to £14,360 2, of which one-half, £7180 1 4, belongs to the mine.

Ore sent to the hacienda of Barrera .....

2131 1/2 cargas

Ore on hand at the mine—picked .....

827

Ore on hand at the mine—unpicked .....

2139—9016 "

NEW COMPANIES.

PHILANTHROPIC LIFE ASSURANCE, ANNUITY, AND ENDOWMENT SOCIETY.

Capital £300,000, in 30,000 shares of £10.

The peculiar feature in the prospectus of this association, beyond the ordinary business of life insurance upon an extended scale, is that of affording to the more humble classes a participation in the advantages attendant upon institutions of this description, the amount for which a life may be insured being £10*s*, while there is no limit to any increase which the circumstances of the artisan or mechanic may admit. In thus reducing the amount insured, we have all the benefits conferred on the working classes hitherto derived from "friendly societies," or "benefit clubs," without the drawbacks which too frequently attend them in the charges of entrance money, monthly charge, or spending money, and the like which may naturally be exacted to arise from the monthly meetings being held, and the contributions paid, at the houses of licensed victuallers. We cannot enter into the detail or minute of the institution, but may illustrate the advantages which—will, in all probability—arise to the community at large, and more especially to the rising generation, by merely observing, that the payment of one penny per week, by a person aged twenty-five, will secure to his nominees ten pounds at the time of his decease. The advantages held out to insurers, and those who may invest their capital in the promotion of this philanthropic institution, will be better understood by consulting the prospectus, which appears in our advertising columns.

AGRICULTURAL AND GENERAL LIFE ASSURANCE COMPANY.

Capital £250,000, in 10,000 shares of £25. Deposit £5.

We have already favourably noticed the objects of this institution, as set forth in the prospectus; and in again classing it, with others, under the head of "New Companies," we have only to express the pleasure with which we learn that the liberal proposals, or, as they are termed, the "advantages" presented by the company—"some of which, by the bye, we believe to be exclusively possessed by them—have become popular, and secured the permanent success and prosperity of the institution. We are glad to find this growing disposition on the part of the public to encourage institutions of this nature. It is one of the marked features of the present day, and the facilities now afforded to all, from the peasant to the peer, to provide for any casualty, and to protect those who may have to lament the loss of a husband or a parent, is most gratifying. We believe, without an exception, the shares held in life assurance companies are considered favourable investments, while to the insured a boon is granted, by the junction of capitalists, from which thousands annually derive the benefit. We must refer our readers to the prospectus for the details of the measure.

YORKSHIRE AND LANCASHIRE CENTRAL AMERICAN LAND AND EMIGRATION COMPANY.

This company, as its title indicates, is formed for the further encouragement of emigration—the territory possessed, and now in progress of colonisation, is described as being situated between the navigable rivers Tinto and Plata, in Victoria Province, Central America, being within fifty days of the British Channel, which passage will be reduced to less than one-half on the establishment of the Mail Steam Packets on the West Indian station. We possess no other information than that presented by the prospectus, and the advertisements which have appeared, with extracts from several works, describing the salubrity of the country, and the advantages it holds out to settlers. As, however, full information, we

## PUBLIC COMPANIES.

## MEETINGS.

**ENGLISH COPPER COMPANY.**—The court of assistants of the English Copper Company hereby give notice, that a HALF-YEARLY GENERAL COURT, pursuant to the by-laws, and to consider of a dividend, will be held at their house, in Upper Thames-street, on Tuesday, the 29th instant, at Twelve o'clock precisely; also that the Transfer Books will be shut from the 22d instant to the 6th of October next.

English Copper Office, September 15.

## TRELEIGH CONSOLIDATED MINING COMPANY.

Notice is hereby given, that a HALF-YEARLY GENERAL MEETING of the shareholders will be held at the company's office, as under, on Wednesday, the 27th of October next, at Twelve for One o'clock.

By order of the board,

ROWLAND NICHOLSON, Sec.

## CALLS.

**LANELLY RAILWAY AND DOCK COMPANY.**—No. 10' is hereby given, that the committee of management have made a PAYMENT of TEN POUNDS per share, on the rateable shares issued in August, 1840, and the proprietors thereof, are hereby required to pay the same on each share, to the credit of the company, at their bankers, Messrs. Cox, Biddulph, and Co., 43, Charing-cross, on or before Monday, the 19th of October next.

By order of the board,

JOHN BIGG, Secretary.

## DIVIDE.

**ALLIANCE GAS COMPANY.**—The directors hereby give notice, that the DIVIDE for the half-year ended 30th June last will be PAYABLE at the offices of the company, 59, Finsbury-circus, London, and Commercial-buildings, Dublin, on Thursday, the 1st of October next, and every following day, between the hours of Eleven and Three o'clock.

By order of the board,

ARTHUR SPEAR, Sec.

**A YOUNG GENTLEMAN** who has completed his Articles, and who can make himself useful in the field or office, is desirous of an ENGAGEMENT as an ASSISTANT with a CIVIL ENGINEER; but, wishing to gain more practical knowledge in the formation of Public Companies, a moderate salary will only be required the first year. Address (post paid) to "A. B." Mr. Odams, Chemist, Bishop Stortford, Herts.

**BANK OF ASIA.**—Applicants for shares are hereby informed that the Honourable Court of Directors of the East India Company have signified by letter dated 16th September, 1840, that "they are prepared to authorise the Government of India to grant a charter to the proposed Bank of Asia," on certain conditions.

The principle of a bank for British India has now received the sanction of Her Majesty's Government and of the Honourable East India Company, and the conditions of the charter from the Crown and from the Indian Government, conveying a limitation of responsibility to the shareholders in England and in India, are in progress of negotiation.

One per cent. deposit on all applications for shares must be paid into the bank of the company—Messrs. Smith, Payne, and Smith, Lombard-street, or Messrs. Herries, Farquhar, and Co., St. James's-street, previous to the applicants being entitled to registration, and the allotment of the shares intended for distribution in England will take place when the necessary preliminary details have been completed. The directors reserve to themselves the right of appropriating the shares in such manner as they may deem conducive to the formation of a solid and permanent proprietary.

For further required information, apply at the offices of the bank, 62, Moorgate-street.

R. MONTGOMERY MARTIN, Secretary.

**AGRICULTURAL AND GENERAL LIFE ASSURANCE COMPANY.**—29, NEW BRIDGE-STREET, BLACKFRIARS, LONDON.

WESTERN BRANCH—26, Norfolk-place, Pall-Mall East.

ADVANTAGES OFFERED BY THIS COMPANY.

Protective securities for the benefit of the assured, not presented by any other institution. The most economical rates of premiums consistent with safety—adapted to Europe, our East Indian and Colonial possessions. An increasing table for securing loans on debts, requiring a less immediate payment for the whole term of life than usually demanded. Premiums payable annually, half-yearly, or monthly. Age admitted in the policy. Policies granted from £10 to £1000. Claims payable in one month after proof of death; and 2½ per cent. immediately after satisfactory proof thereof whenever desired. Policies effected in Ireland or Scotland recoverable in the Courts of that country. Endowments and annuities, immediate and deferred, on advantageous terms. A board of management in attendance daily. Medical men remunerated for their reports.

C. F. KIRKMAN, Resident Manager.

A liberal commission allowed to solicitors and agents.

Applications for the office of agent to the institution in the different towns of the kingdom are invited, addressed to the resident manager, at the house of the company.

**POLYTECHNIC INSTITUTION,** 309, Regent-street, London.

The arrangements of the laboratory being now perfected, analyses, and assays of earths and metals, will be made, under the immediate superintendence of Mr. Vaughan. The value attached at the present moment to the several descriptions and properties of earths, renders their correct analysis matter of infinite importance to the agriculturist—mineral properties, hitherto unexplored, too frequently escape observation, and their value being realised alone from the want of knowledge, or the various minerals being subjected to analyses. The proprietors of landed and mineral property, as well as the practical miner, and the capitalist, are now enabled, at an easy cost, to acquire accurate and detailed information with reference thereto, application being made, either personally, or by letter, to Mr. Vaughan, at the institution, 309, Regent-street.

The institution is open daily, where are exhibited the several models and working machinery, which have of late proved so attractive, embracing, among others, Hall's Hydraulic Bell, the Daguerrotype, the Diving Bell, Col. Pasley's Voltaic Experiments, Mr. Green's Propulsion of the Balloon, with daily lectures on the Steam-Engine, Heat, Electricity, &c.

**RAILWAY'S PATENT RAILWAY.**—Models of this novel mode of railway communication, which has attracted so much interest, are to be seen in operation daily.

Catalogues containing accurate descriptions of the several models and articles exhibited, may be had at the rooms.

**THAMES TUNNEL.**—Open to the public every day (except Sundays) from Nine in the morning until dark. Admittance One Shilling each. The Tunnel is eleven hundred and forty feet in length, brilliantly lighted with gas, and the entrance is on the Surrey side of the river, close to Rotherhithe Church. The Shield has been advanced to within the limits of the company's wharf at Wapping.

By order,

J. CHARLIER,

Clerk to the Company.

**N.B.**—Conveyances to Rotherhithe, by omnibus, from Piccadilly, Charing Cross, Fleet-street, and Gracechurch-street; and, by steam-boats, from Chelsea, Vauxhall, Lambeth, Hungerford, Queenhithe, the Old Shades Pier, and London Bridge, to the Tunnel Pier at Wapping.

**THE PATENT SAFETY FUSE.**

FOR BLASTING ROCKS IN MINES, QUARRIES, AND FOR SUBMARINE OPERATIONS.—This article affords the safest, cheapest, and most expeditious mode of effecting this very hazardous operation. From many testimonies to its usefulness with which the Manufacturers have been favoured from every part of the kingdom, they select the following letter, recently received from John Taylor, F.R.S., &c.

I am very glad to hear that my recommendations have been of any service to you. They have been given from a thorough conviction of the great advantages of the Safety Fuse; and I am quite willing that you should employ my name as evidence of that.

Manufactured and sold by the Patentees, BICKFORD, SMITH, and DAVY, Camborne, Cornwall.

## WEEKLY RAILWAY TRAFFIC RETURNS.

## LONDON AND BIRMINGHAM RAILWAY.

(Length of Line, 118 miles.)

The gross amount for conveyance of passengers, parcels, goods, &c., for the week ending the 16th day of September, 1840, 18, 8. For merchandise for the same time, 3,143 19 6. Carries, 309 19 6.

Total, 41,030 8.

## GREAT WESTERN RAILWAY.

(Length of Line opened, 79 miles.)

Total Returns for the week ending 16th of September, 40,723 2 3.

LONDON AND SOUTH WESTERN RAILWAY.

(Length of Line, 154 miles.)

Total receipts for passengers, parcels, &c., on this line for the week ending the 16th of September, 18,720 0 24.

## EASTERN COUNTIES RAILWAY.

(Length of Line opened, 124 miles.)

Passengers to Brougham 10th, 40,415. Returns for the week ending the 16th of September, 9,078.

Total passengers, 51,493.

## LONDON AND BRIGHTON RAILWAY—SHOREHAM BRANCH.

(Length of Line opened, 6 miles.)

Total returns for the week ending 16th of September, 4,018 18 9.

## NORTHERN AND EASTERN RAILWAY.

(Length of Line opened, 182 miles.)

Total returns for the week ending 16th of September, 4,021 1 9.

## LONDON AND BLACKWALL RAILWAY.

(Length of Line, 3½ miles.)

Total receipts for passengers for the week ending 16th of September, 2,047 10 2.

## LONDON AND GREENWICH.

(Length of Line, 1½ miles.)

Week ending 16th Sept., 1,000 17s. 6d. Week ending 16th Sept., 1,002 17s. 6d.

## PUBLIC COMPANIES.

## MEETINGS.

English Copper Company	Upper Thames-street	Sept. 23	12.
Eastern Counties Railway	London T' wern	29	1.
Bristol and Exeter Railway	Merchants' Hall, Bristol	29	12.
Minas Geraes Mining Company	5, T' ockhouse-yard	29	2.
Great Wheal Charlotte Mining Ass'.	George and Victoria Tavern	30	1.
Trelegh Consolidated Mining Co.	3, Threadneedle-street	Oct. 7	1.
Imperial Gas Light and Coke Com.	2, John-st, Bedford-row	8	1.
River Dee Company	22, Moorgate-street	13	11.
South Metropolitan Gas	3, Mansion-house-street	14	11.
London Joint Stock	Three Tuns, Borough	15	12.
Agricultural and	Princes-street	17	12.
Margate Pier	Office, Fleet-street, Dublin	19	11.
Thames Ha'penny	Town Hall, Margate	19	11.
London and Dock and Railway	28, Moorgate-street	30	12.

## CALLS.

1st of O'Clock	Sept. 26	Hankey's.
2nd of O'Clock	Oct. 6	As former calls.
3rd of O'Clock	13	Union Bank of London.
4th of O'Clock	14	Hankey, Fenchurch-street.
5th of O'Clock	15	As former calls.
6th of O'Clock	19	Cox, Biddulph, and Co.
7th of O'Clock	21	London Joint Stock Bank.
8th of O'Clock	26	2, Moorgate-street, London.
9th of O'Clock	27	1, Ladbrooke, Kingsgate, and Co.

## DIVIDENDS.

Alliance Gas Company	Office, Finsbury-circus	Oct. 1.
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## LATEST CURRENT PRICES OF METALS.

LONDON, SEPTEMBER 25, 1840.

IRON, Eng.—Bar 6s 0 to 8 15 0	COPPER—Foreign... (dy. 37s.) 0 0 0
Do. Carg. in Wales 6s 0 to 8 15 0	Brit.—Blocks... evd 4 0 0
Hoops ... 10s 11 0	Bars... do. 4 0 0
Sheets ... 10s 12 0	Bars... do. 4 0 0
Pig, No. 1... 5 10 0	Streets... 0 0 9 to 16 0
Do. in Wales ... 4 10 0	Tin Plates... 1 1 0 to 1 18 0
Foreign— Sweden, crn. 6d. 12 19 0	Lead, Brit.—Pl... for 29 0 0
Russian com... 10s 14 0	Sheet... 20 0 0
Duty 30s. per ton... 15 0	Sheet... 21 0 0
c.c.w.b. 18 19 0	Shot... 22 0 0
Streets, Eng. Blistered, 23 0 to 45 0	Red... 22 0 0
Shear do. do. 45 0 to 84 0	White (dry)... 27 0 0
Cast do. do. 45 0 to 84 0	Do. (gd. in oil) 36 0 0
Foreign— Sweden, kgd. 10s 10 0	Foreign—Span. (dy. 40s.) 19 0 0
Milan... 6d. 10 0	Spelter... 0 0 0 to 21 13 0
Do. Faggots 6d. 10 0	For delivery 0 0 0 to 21 13 0
per cent.	English Sheets... 37 0 0
Do. 4d. 10 0	Quicksilvers—(dy. 1d. per lb.) 0 3 10

## THE FUNDS.—SATURDAY MORNING.

## ENGLISH FUNDS.

3 per Cent. Reduced, 87 1	India Bonds, 3 dis.
3 per Ct. Consols Annuities, 87 1 2 8	Annuities for 30 years, 1860, 13 1
2½ per Cent. Reduced Anna, 96 1 2	3 per Cent. Consols for Acc't, 87 1 2 8
New 3½ per Ct. Annuities, 97 2 6 7 2	Exchequer Bills, 2d., 7 5 7 pm.
	FOREIGN FUNDS.
Austrian Bonds, 5 per Cent., 106	Portug. Bonds, New, 5 per Cent., 32 1 2
Belgian Bonds, 5 per Cent., 97 1	Ditto 3 per Cent., 21 1 2
Brazilian Bonds, 5 per Cent., 78	Spanish Bonds, 5 per Ct., 29 1 2
Colombian Bds., 1824, 6 p. Ct., 222	Ditto Passive, 5 1 2
Dutch 2½ per Cent., 97 1	Ditto Deferred, 11

## ORIGINAL CORRESPONDENCE.

## PATENT WIRE ROPE VERSUS HEMPEP ROPE.

TO THE EDITOR OF THE MINING JOURNAL.

SIR.—I have seen your Journal of the 12th and 19th instant, and am sorry to find I have been the means of leading you into error respecting the weights of the ropes tested on the 31st August at Woolwich. When I read the statement of the weights, I expressed my doubts of their correctness, and had not the least idea you intended publishing what I then stated as the actual weight, for it since appears that they had been weighed by scales which were not accurate. I have since revised the weights, and find those stated on the trials on the 20th of August, as reported by you in your Journal of the 22d ult., to be correct. I am exceedingly sorry to give you this trouble, but trust you will set me right with the public.

With respect to Mr. Budge's remarks, that he has an impression my rope will not answer for mining purposes, and gives as his reason that it will not run over pulleys, &c., and complains of the trial which was made at Woolwich being unsatisfactory, because it was not made over rollers, I wish this gentleman had seen the ropes before he had made these observations, for he would have found the mode we adopt in splicing the ends, and the introduction of the iron thimble, makes the extreme pressure of the rope when tried at an acute angle, whereby it undergoes the trial he alludes to. The wire rope has been in use some time in mining, and in every instance has succeeded; and, as an instance of its superiority over hempen rope, I refer any one to the Blackwall Railway, where a wire rope of 150 yards long, 3½ inches circumference, is now at work, and is attached nearly to the extremity of a hempen rope of six inches circumference, that weighs upwards of twenty-seven tons—having not only to draw the greater part of the hempen rope, but also the train of carriages. This rope has been in operation for some weeks, and was this morning as perfect as the first day it began to work; perhaps you will say this is a short trial, but if we consider the immense speed at which it runs, the great friction over the pulleys and drum, comparatively speaking, it has already done as much work as it would have been required to do in two years ordinary work at a mine. I send you herewith a certificate, received from Mr. Woodall, 28, Orchard-street, Portman-square, who has had one of my ropes, two and a quarter inches circumference, at work two years, winding over a drum only six inches diameter, and is now as good as new.

I am, Sir, your obedient servant,

ANDREW SMITH.

[copy.]

London, July 22, 1840.

This will certify that I have had one of Mr. Andrew Smith's Patent Wire Ropes in constant use about eighteen months, for the purpose of raising and lowering my carriages from the bottom floor of my factory to the painting loft, which is on the third floor; the barrel of the crane, or machine which the rope is wound upon, is six inches in diameter—the rope is cable laid, and full two inches in circumference—and I have every reason to be well satisfied with the working of the Patent Wire Rope.

(Signed)

JOHN WOODALL, Coachmaker,

To Mr. Andrew Smith,

28, Orchard street, Portman-square.

We are glad to find that the comments made in our columns of the 12th inst., on subject of the altered weights, have elicited from Mr. Smith an explanation; and having been afforded by that gentleman an opportunity of ascertaining the real weights of the various sized wire rope, we have much satisfaction in giving the result, the certificate being signed by the respective parties in whose presence the rope was weighed. That the differences which have arisen may not mystify the question, we will give the weights as furnished us at the time of the first experiment at Woolwich, on the 30th (being the second test); and, further, the correctly ascertained weights, the certificate of the accuracy of which, is now before us; from these it will be seen that but a slight difference arises in these first given, and the actual weights. We regret that from want of personal attention on the part of the patentee, he should have been led into the error which caused our remarks, but we trust this practical illustration of the value of the old adage, "that if you would have a thing done well you must do it yourself," will be a lesson to Mr. Smith, and that in a matter of so much moment as the correctness of weights, on which hinges the value of his patent, as to the economy attendant on the use of the wire rope, he will hereafter take care to see for himself, and not trust to others. We shall have something further to say on the subject, perhaps next week—in the interim, however, it is highly satisfactory to find that Mr. Smith's second report was formed on error, that our remarks, therefore, must be considered cancelled, the bases on which they were made being destroyed, and that the strong recommendation given in the *Mining Journal* of the 22d ult., are fully supported by further investigation. The following shows the weights as given on the three several occasions:—

FIRST TRIAL.		SECOND TRIAL.		CERTIFICATE.	
Inch.	Ibs. oz.	Inch.	Ibs. oz.	Inch.	Ibs. oz.
1	1 6	1	2 9	1	1 11
1	2 7	1	3 5	1	3 3
1	3 1	2	7 12	2	7 11
2	7 4	3	9	3	9 8
3	9 11	3	12	3	13 9
4	18 9	4	24 0	5	24 4

[The certificate is signed by parties present, Sept. 24th.]

## ON THE VENTILATION OF COAL MINES.

TO THE EDITOR OF THE MINING JOURNAL.

SIR.—When the discussion first commenced in your valuable Journal, on the important subject of the ventilation of coal mines, I was led to expect, after the preliminary steps that Mr. Dunn had advanced in the inquiry, that his communication would have been followed up by others, who would have enlarged, and more clearly elucidated the positions assumed by him, and have enriched with new suggestions, a subject in which the interests of science and humanity are alike involved. But I confess I was much disappointed on reading the letter of your last correspondent ("James Cadman") on this subject, who has, I am sorry to say, left the discussion just where he found it—unimproved by a suggestion of importance, or unaided by a single practical or theoretical illustration.

The mode of ventilation pointed out by Mr. Dunn is that adopted in every part of the kingdom, and, although the manner of its application may in some instances be varied, from local causes, the principle remains the same; and whether the workings be by levels or by pits, there must alike be one opening for the ingress of fresh air, and another for its egress, after it has traversed through the various "headings," "stalls," and "windways;" and great care should be observed by the overseer, whether he be "educated" or uneducated, that the passage or way along which this current of fresh air passes, in all its tortuous rounds, be closely "gobbed" up, or excluded from access to the old workings, where it will become "fouled" or contaminated with either the carbonic gas (the "black," or "choke-damp," of Mr. Cadman) or hydrogen gas (the "fire-damp"), which is usually lurking in the "old hollows" from whence the coal has been removed.

The use of the fire (which ought always to be most carefully attended to) at the bottom of the "upcast shaft" of Mr. Dunn (which is but another name for a chimney) must be so obviously to cause a draft, or current of the air, towards it, by continually consuming that portion more immediately in contact with it, that any more elaborate description would be alike unnecessary, and tedious to your readers.

The fatal accidents which we so frequently hear of from the explosion of fire-damp, occur too often, I fear, from the overseers obliging men to work in situations which are in "advance of the passage" before described, "along which the fresh air passes"—and at length the stagnant accumulated exhalation of inflammable gas from the coal, coming in contact with, perhaps, the candle or unprotected lamp of the imprudent collier, suddenly bursts into flame, and instantly locks in the silence of death the tongue that could have told its sad story of temerity.

I find I am trespassing at greater length than I intended, as my object in writing this letter is not so much to discuss the subject itself as to guard the public mind from being misled by an expression made use of by Mr. Cadman, who casts a reflection on "the masters and owners of collieries (of whom I am one) for an improper selection of agents, from a desire to economise;" but I am persuaded, from my own experience, and I have it on the testimony of many enlightened and practical masters, that amongst the best captains in Cornwall, and the best agents in Wales, both in the mineral and manufacturing departments, are those selected from the ranks of the workmen, whom Mr. Cadman would characterise as "overseers with little or no experience, or education, to qualify them for such appointments."

I remain, Sir, your very obedient servant,

JAMES MORRISON.

[We are obliged to our correspondent for his communication, and are glad to find the subject exciting the attention of those who are in the end most interested in the security of the life of the miners. We do not, however, quite agree with the construction put by Mr. Morrison on Mr. Cadman's

remark, having reference to "overseers, with little or no experience or education to qualify them for such appointments"—Mr. Morrison maintaining that the best agents "are those selected from the ranks of the workmen." We feel assured, on a reperusal of Mr. Cadman's letter, that it will be seen his remarks are not intended to apply to that class of overseers who, as practical men, take "from the ranks of the workmen," must be admitted as men of experience, and, as far as underground operations are concerned, must also be considered "educated." We believe, in many districts, the system is too lax, and that sufficient care is not observed in the selection of practical men, and hence the accidents, on many occasions, which have formed subject of remark. We thank Mr. Morrison for his letter, and although it elicits nothing novel, it tends to sustain the interest, which we are glad to find is so deeply felt by the owner, the viewer, and the collier.]

## TIN MINERS VERSUS SMELTERS.

TO THE EDITOR OF THE MINING JOURNAL.

SIR.—In reply to the letter of "C. E." of the 16th inst., in your Journal of last week, I find, on reference to two printed reports of the statement of Mr. Vigers at Helston, that the amount of white tin named by him as the annual produce of Cornwall, was from 4500 to 4700 tons; and he is borne out in this by the "Statistics of the Tin Mines of Cornwall," from the pen of Mr. Joseph Carne, from which it appears that in the year 1837 (the one year of greatest produce from 1831 to 1837 inclusive) the quantity was 259 tons of grain, and 4531 tons of common and refined tin—total, 4790 tons, sufficiently accurate for all the purposes of the argument, unless with the extremely captions. The average of the seven years was only 4250 tons, and I think he could not, justly, have been accused of straining a point to make out his case, if he had taken this average.

As to the returns from the smelting-houses, which "C. E." has given to understand show 5900 tons of metal smelted in 1839, I would ask "C. E.," whether it is ever customary to take the evidence of the accused without corroborative proof?

A certain Italian duke, when visiting the galleys, questioned the delinquents, and found them to be all injured and innocent men, according to their own showing, with one exception, and that one declared that he was justly accused and punished. "Take that man away," said the duke, "and set him at liberty, that he may not corrupt these innocents."

It is a pity that some such honest fellow will not, in the present case, come forward and confess, as it would save much time, and "shedding of ink," and would leave the "innocent" smelters to the full enjoyment of their innocence, without a chance of further interruption. If the smelting-houses would verify their returns since the last official year of coining, and also their stocks of black tin on hand at stated periods, that might lead to something accurate, but, as it is, it can only lead to error.

The letter of "J. J.," in your same Journal, requires but a short reply. My figures in your Journal of the 12th instant were taken from "Gryll's Annual Mining Sheet," and from the experience of Mr. Joseph Carne, as regards the proportion of private sales. Let "J. J." overturn these authorities if he can; until he does I shall adhere to my statement.

In the "Mining Sheet," No. 8, there is this note:—"In consequence of the coinages having ceased, it is not possible to ascertain what quantity of tin has been sold by *private contract*." This creates a difficulty, but I think it may be sufficiently overcome for all the purposes of the question at issue, by obtaining the returns from the office, where the "farthing" duty is paid upon all the tin produced.

I remain, Sir, your obedient servant,

A TIN MINER.

[The question of the tin trade has been so frequently descended upon by us, both in our notes to the letters of our correspondents, and the observations which the inquiry has called forth, that we deem it unnecessary to occupy space by any further comments on the letters inserted in our columns. We are glad to find "A Tin Miner" determined to stand his ground; at the same time we may tell him, that he may look out for squalls next week, when we are to publish our "Tin Miners' Handbook," and that he may be compelled to postpone the insertion of a letter received from "Honestus"—but more of this anon.

## THE TIN TRADE—REPLY TO "HONESTUS."

TO THE EDITOR OF THE MINING JOURNAL.

SIR.—Your columns have recently abounded with communications on this subject to such an extent, that I should deem an apology necessary for thus troubling you, had you not given so many proofs of your desire to promote the free and open discussion of the question, with a view, as I believe, of eliciting the truth. Although the letter of "Honestus" has received some slight notice from one of your correspondents, I must beg permission to make a few remarks thereon. The object of "Honestus" cannot be mistaken, it being apparent from beginning to end of his lengthened epistle—namely, that of upholding the system hitherto pursued, and justifying the smelters—a body of men of whose proceedings in the trade the miners consider they have just cause of complaint.

By the letter of "Honestus" you would almost suppose that Mr. Vigers—a gentleman to whom all the miners are highly indebted—had made some new discovery, and that he had taken the miners by surprise; but the fact is, they were quite as much alive as that gentleman to the evils of the then existing system, and the consequent disastrous effects on their property.

"Honestus" has chosen to make a very unfair and unwarrantable attack on Mr. Vigers, but whose motives, I contend, cannot be questioned, inasmuch that there is nothing in Mr. Vigers's communications which cannot be borne out by fact. The sum and substance of his charge against the smelters amounts to this—that "they have conducted their business in a way tending to injure the property of the miners, and disreputable to themselves as merchants." Now, how stands the case? It is well known and admitted that, in nine cases out of ten, the alteration in the price of tin does not arise from any legitimate cause, but is the effect of jobbing in the trade; and that, as Mr. Vigers says, they fall back on the produce of the miner to remunerate themselves in case of a decline in price. "Honestus" says Mr. Vigers might give higher prices at the ticketings, and thus, in a great measure, prevent this "cutting and underselling process." This is not true to the extent intended to be conveyed; he might, to be sure, give higher prices, but he would be insane if he did—he would have no chance against the combination of the other smelters, who would run up prices upon him, and, as soon as he ceased to buy, they would cause him to drop again, thereby saddling him with black tin at high prices, when the "cutting and underselling" would go on as bad as, or worse, than before, in order to drive him out of the trade as they have done others. "Honestus" must intend to write for readers who know nothing about the matter, as he is well aware that the practical miners will only smile at such trash. However, this apart, it is enough for the miner to know that the evil exists, and that it is his interest to remove it. It is also well known, I believe, that great feeling exists in the trade between the smelters themselves, and when in town, some time since, I had a price of this—it being openly asserted by one house, that they would undersell another party in the trade in the London and other markets. The consequence was, that, from this or some other cause, the declined in price, in the space of a few days, about 12½ per cent. This could not have occurred had not the parties the power of replacing stock by causing a corresponding decline in the price of black tin. They themselves produce this effect, and the miner, who is compelled, under the late system, to render his produce for sale, by ticketing, is the sufferer.

Again, it is a common practice of the smelters to announce a fall in the price of tin by sending out circulars throughout the kingdom, when they wish to lower the price in Cornwall before the approaching sales—Indeed, I have been informed, on good authority, that purchases have been attempted to be made at the reduced prices quoted by them, but without success—the object is effected by a reduction in the price of the ore, and this is sufficient. Do we find such proceedings in other metals? Certainly not, and the reason is simply this—that there is not the same power to replace stock, nor the same temptation in these objectionable practices.

The intention of the new measure is to enable the miner to smelt his own ore, as Mr. Beaumont does his lead, of which Messrs. Thompson and Co., and Messrs. Walker and Co., and others, are the chief purchasers. These wealthy and respectable firms occupy the position of wholesale dealers in this branch of business. Do we find these houses running a similar race to those in the trade—and, from motives of rapacity or vindictive feeling, running, by their own deliberate act, a decline in the price of the article in which they deal?—No—and why? Because Mr. Beaumont smelts his own article—brings it to market, through his agents, without submitting it to a public sale, in which there is not that competition necessary for the protection of the property, and which is the case at, what Mr. Vigers calls, the "ridiculous ticketings." If you could suppose these houses in the lead trade to be the only purchasers at similar ticketings for lead ore as for tin, and that no greater competition existed than in reference to the latter article, it is possible that similar manoeuvring and jockeying might take place in the one case as in the other—the system would be found defective.

The letter of "Y. Z.," in your Journal of the 5th inst., in alluding to the tin trade, stepped out of his way to make some remarks, as he supposed, to the practice of the proposed alteration, and assumes that "Wheelbarrow" adventures would be increased, better off if the miners had not smelted their own produce; but I must take leave to say, that his own observations imply great ignorance of the subject on which he writes, he knows nothing of the history of this mine, or course if he does, for it was the objections of the proprietors in that mine to the system pursued by the smelters of which we now complain, that induced them, in the first instance, to smelt their own ore. This concern is conducted by some of the most enlightened merchants and miners in the country, who are competent judges of the question, and their inference is, that they have pursued the course recommended to their own interests—the fact is, they had lost confidence in the smelters themselves, in their mode of dealing, and have, up to this moment, acted independently of them. "Y. Z." therefore, is not very happy in his illustration. Had it referred to "Honestus," who goes on to say, that "this is a mercantile question—it has nothing to do with mining, except so far as it may influence the profit and loss on working miners." Honesty nothing can be more absurd than such a statement, as it must be evident that the same proprietor must be the smelter, if he is not in a situation to bring his produce into the market unbroken, this would

ever cause it may arise—and the name may be said of the manufacturer, if he is similarly placed. The reasoning of "Honestus," with regard to Banca tin, is good, as far as it goes; but he is aware, that one of the chief inducements on the part of the tin plate manufacturers petitioning government for a reduction in the duty on foreign tin, was the inferior quality of the refined tin produced by the smelters? That common tin was substituted for refined, there can be no question; and the tin plate manufacturers used this fact as an argument on the occasion to which "Honestus" alludes. All this further proves the necessity of the miner sending his commodity direct to the consumer, without the intervention of the smelters. As to that part of "Honestus's" letter which speaks of supply and demand, and asserts that there is at present a considerable stock on hand—were it not tedious, it would be very easy to furnish a statistical account, as regards both copper and tin, to show that we become every year less dependent on foreign demand for the disposal of the surplus of these articles—but, in the case of tin, "Honestus" takes advantage of an occasional interruption in the demand, and construes it into a want of consumption. Now, it is a fact well known in the trade, that, for want of water power, the manufacturers of the plates in South Wales, and elsewhere, have not produced half their usual make for some considerable time past, which will account for a temporary accumulation of stock—but it is admitted that they are full of orders. Again, we are told that the new measure adopted by the tin miners is calculated to cause immense mischief, and may recoil upon the miner with fearful severity. It is difficult to conceive how such an assertion could be made, considering the quarter from which it emanates, and in its ridiculousness in itself. Is "Honestus" aware that Messrs. Williams, Foster, and Co. were first induced to go into the smelting of copper to protect their interest as miners?—being at the time largely interested in the mines of Cornwall. Their reasoning was this—that what they lost on the one side in the trade they should gain on the other. The copper smelters then in the trade, naturally enough, regarded their movements with jealousy—but what has been the result? The company has, during a long period, attained a position in the trade unknown to any of their predecessors, but whether they have, in their successful career as copper smelters, followed the maxims towards the miners, of "doing unto others as they would be done unto," let the copper miners answer—sufficient for my purpose is the strong fact, that they originally became smelters to protect themselves as miners.

Mr. Richard Taylor's zeal to aid the smelters is sufficiently apparent. We see him not only objecting to the measure, but so very resolute is he in the cause, that's when chairman of the Charlestown Mine, he had recourse to maneuvering or colusion, by which he assigned a parcel of tin, of the said mine, to one of the smelters at about 21½ less than had been offered by Messrs. Vigers and Co. The adventurers, at a subsequent meeting, very properly manifested their sense of his conduct, by awarding the latter first a like quantity of tin at the price they had bid. This transaction is regarded in the country as one that reflects great discredit on Mr. R. Taylor—at this who can be surprised?

The question resolves itself into this—Is it not desirable that the miner should abolish the old system, and, by becoming his own smelter, bring his goods direct to the consumer, without the aid of the present race of smelters? The fact, that nearly four-fifths of the mining interest are now acting upon the new plan, speaks for itself, when we are informed that these parties constitute a very large proportion of the wealth and intelligence of the county. But, allow me to ask if good has not already arisen out of the new arrangement? When Mr. Vigers came into this county, and held his first meeting, tin was selling in the London market at 7d. per cwt., with a probability of a further fall, and refined for nearly the same price as common; now, immediately after the adoption of the new plan, the price became stationary and firm at 8d. and 9d. But it may be said that the smelters had a right to act in accordance with their own views, and to lay in stocks at what they might consider safe prices—that at the period mentioned we had a slack demand for refined for want of water—that foreign orders were tardy in coming—and, further, that the result of the approaching harvest was doubtful. All this is admitted—give the smelter credit for motive as well as caution—but, while we do this, let us contrast the present position of the miner with his former situation; instead of selling his property under such circumstances, he has smelted his own tin—has held it till the demand has resumed, and has already had, and will continue to derive, the advantages that the present improved state of trade will ensure him. And is he not confirmed in the steps he has taken? If Providence has blessed us with an abundant harvest, may not the tin miner be permitted to share the advantages, by which every other part of the trading community has already derived benefit?

It is a fact that no one will, I

time to measure the air, which I regret very much, but the quantity was such, that the miner had a wooden box, about twelve inches by eight, for his coal to stand in, at the mouth of the brattice—otherwise it would either have been blown out or very soon swelled away; and on putting the lamp (a Davy) close to the face, it filled with the damp instantaneously. The workings in this mine were carried up four yards wide, leaving six good pillars to support the roof, and one yard was taken for every work by the brattice. The use of the brattice obviates the difficulty of cutting the workings strait, since every work becomes, when brattied, two—saves a great deal of money in the shape of cordage, and the coal will fetch a higher price in the market when got.

Were it not for the furnace, there is scarcely a fiery mine in the country that could be worked, but I am of opinion they are never set in the proper situation. The specific gravity of air is more in a deep mine than it is at the surface, which is the reason the rise shaft is generally the upcast. Now, in preference to placing the furnace at the bottom of the pit, I would put it at the top—raise a chimney above it, and confine the fire, so that all the air it consumed would have to rise up the pit, and thus, with the rarefaction of the air by the furnace, the draught of the chimney, and the less density of the air at the top of the chimney, I am of opinion that the Davy would only become necessary in the hands of the firemen. On the whole, I presume it may be laid down as an axiom in mining, that it is not safe for the collier to work where he cannot use a naked candle, and measures ought instantly to be taken to make it so.

I am, Sir, your's, respectfully,

X.

[Our correspondent will find, in addition to his communication, two other letters treating on this important question. It is pleasing to find that our efforts are thus kindly received, and responded to by those who, from practical experience, are so far better able to effect good by bringing forward the results of their inquiries, and thus, through the medium of our columns, communicate to the collier, in the most distant parts of the kingdom, that information which may, in many instances, be the means of the preservation of life, and which may be expected at least to arrest the attention of the thinking part of the community. If that the practical man would throw down the pick, and wield the pen occasionally, he would be doing a real benefit to his fellow-creatures. We are aware, in too many instances, that the working miner and collier fear to appear in print—they are too nervous, and wanting in confidence, to commit their thoughts to paper, or even the result of their inquiries and observations. The subject under notice, however, is one which affects the coal owner—the viewer—the collier—and, what is more, those widows and orphans, who are to, often, cast upon the world, without means of support, or any resource, attributable alone to the want of caution observed in working coal, in situations, and under circumstances, from which those melancholy accidents arise, and which we have so frequent occasion to record. We again have to express our obligations to "X." and other correspondents, who humanely devote a few minutes of their time to furnish hints or suggestions on a subject of such vital importance.]

#### QUESTION OF PATENT RIGHT—USE OF ANTHRACITE IN THE MANUFACTURE OF IRON.

TO THE EDITOR OF THE MINING JOURNAL.

Sir,—You have inserted a letter in your Journal of the 12th instant, addressed to the editor of the *Cambrrian*, signed "W. M.," dated Gray's Inn, and to which you append certain observations of your own. I beg to be permitted to say a few words in reply. If there is any impropriety in discussing the legality of "Crane's patent," it entirely rests with Mr. Crane's advocates, such discussion being wholly unprovoked by the other side. As a general principle, I quite agree in the impropriety of newspaper discussion, pending proceedings in a court of law, but, in this instance, I think there is something like a waiver of wrong, inasmuch that I feel confident we shall hear no more of it in a court of law. Be that as it may, there appears an evident disposition and determination, if possible, to write up Mr. Crane as a first-rate genius, and his patent one of the most brilliant conceptions of the age—to question which is nothing less than absolute trifling. I own, Mr. Editor, I was surprised to find you using such an expression as the following:—"And so illiberal—not to use a more harsh expression—do we consider the conduct of the Neath Abbey Company," &c., &c. Is it a part of your editorial creed to deny independence of opinion and honesty of intention in others, because they do not coincide with your own views? I shall not follow "W. M." through all his laboured reasoning, but apply myself to the only real point at issue, viz.—Is there any invention at all in Mr. Crane's discovery? and, then, is there such a combination as will entitle him to a patent? if there is neither of these—and I contend there is not—I quote your own words to express my feeling:—"While it requires not a Solon to determine on which side Justice lies, whatever may be the law." Now, then, to the point. Mr. Crane has made iron with a fossil mineral fuel and hot-blast combined, which, in order to support an invention, or a patent, must be proved to be clearly distinguished from previous known methods. Is it not notorious, that iron has been made for many years with these very elements, viz.—fossil mineral fuel, or pit-coal, and hot-blast, combined? But then comes the special pleading: oh! our fossil mineral fuel is of a different mineralogical character to that heretofore generally used, neither is it called by the same name. At this rate, we may have as many inventors (bless the mark), and as many patents, as there are species of coal, possessing trifling differences in their mineralogical composition; this, surely, must be too absurd to be law. As well, Mr. Editor, might you claim to be an inventor, and entitled to a patent, if you were to print your paper with red ink, and rely upon the right to a patent, on the plea that red ink was a different chemical compound from black ink. Ink is ink, print with which you will—so coal is coal, make iron with which you will—bituminous coal, or anthracite coal.

It may go far to discharge the subject of a great deal of mystification, to explain that anthracite coal is not a separate formation, as has generally been supposed, but in truth, and in fact, is part and parcel of one and the same seam of coal as that which produces bituminous coal—in fact, that it is "a distinction without a difference." The geological position of anthracite, in South Wales, is unlike that in any other portion of the world that I have heard of, and, in consequence of that difference, we are enabled to solve the problem, as to whether anthracite is a separate formation from bituminous coal, or not. In Ireland, and in America, where there is a very large deposit of anthracite, it is unaccompanied by bituminous coal, as also is it in Pembrokeshire, but in another part of the South Wales coal basin we have both. The locality of the anthracite region extends from the Vale of Neath through the west part of Glamorganshire, a small portion of the south of Breconshire to Kidwelly, in Carmarthenshire, and, after crossing Carmarthen Bay, it again appears in Pembrokeshire, at Saundersfoot, and continues its course all across the county to St. Bride's Bay. In the three first-named counties, the anthracite is confined to the north crops of certain seams (about twenty), then dip to the south a considerable way under the surface of the land, and then again rise to the south; the south crops are there bituminous, but in Pembrokeshire the north and south crops are pure anthracite. These are facts that are indisputable.

It follows, as a consequence, that an alteration from bituminous to anthracite coal takes place somewhere on the line of dip from north to south. I affirm, without the slightest hesitation, that the seams which are anthracite on the north crops, are the identical same seams that are bituminous on the south crop. Of this any geologist may satisfy himself by examining the relative position of the coal and the accompanying strata, including the lime rock, from Landeilo, in Carmarthenshire, to the district of Gower.

The point at which the change takes place I expect to be too deep for actual examination, in the direction of the dip; but, in an east and west direction, we find the alteration takes place at the magnificient fault in the Neath Valley, known as the Dinas Rock, on the east side of which the coal is slightly bituminous, continuing to increase in bitumen as they trend eastward.

The solution of this extraordinary fact in natural history I take to be as follows:—It is very evident that, at some remote period, the regions containing coal have been subjected to violent convulsions, as is proved by the many faults and dislocations, such as are scarcely credible to those unacquainted with the subject: one thing appears certain, that great heat was employed in producing these convulsions. From this I deduce—that the coal which is now anthracite, or carbonaceous coal, probably, at one time, possessed bitumen; but having been subjected to great heat, and, at the same time, enormous pressure, until, to use a familiar, if not an elegant, expression, the fat (bitumen) has been roasted out of it, in the great laboratory of Nature, which has left the parts of the coal seams so acted upon a pure native mineral charcoal, called by mineralogists "an-

thracite." In the humble imitation of Nature, "coke" is an artificial charcoal or anthracite, made by submitting bituminous coal to the action of heat, in an oven, until (actually) the fat or bitumen is baked out of it. Precisely the same thing takes place in a gas retort. If, then, I have proved that anthracite and bituminous coal are one and the same seam, I think it cuts the argument from under Mr. Crane's patent admirers, viz.—that they are different things. Speaking individually as an anthracite owner, deeply interested in this question, I feel grateful to Mr. Joseph Price for the undaunted manner in which he has resisted an attempt at monopoly; and I speak feelingly, when I say, I know the attempt has done serious injury to the owners of such property, and the districts in which it is situated, by preventing a greater introduction of capital through the instrumentality of this moonshine patent.

I am, Sir, your obedient servant,

Thornhill, Swansea, Sept. 21. W. LONG WREY.

[We regret to have occasion to insert the letter of Mr. Wrey, which, however, we feel bound to do, in fairness, although the discussion did not emanate with us; but having transferred into our columns the letters of parties, which appeared in the *Cambrrian*, with comments of our own, we cannot refuse admission to the letter of Mr. Wrey, more particularly as we had already type his last communication to the *Cambrrian*, which will be found subjoined. It is not our intention to "wage war" with Mr. Wrey, for we profess not those requirements and practical geological experience and knowledge which he assumes to himself, and which we are ready to admit him to possess. It is not because we regard our opinions, by way of notes, to the letters of correspondents, that we are to become controversialists, either in the advocacy or opposition of any measure—and, therefore, our correspondent must excuse us entering the lists with him. Our course is one so plain and defined, that any deviation would tend to lower us from the high position we assume. We say this much at starting, for it behoves us to notice Mr. Long Wrey's comments on the remarks appended to his letter, for the correctness of which we are ready, on this as on all other occasions, to contend. We will briefly run through Mr. Wrey's letter. Mr. Wrey, in the outset, shows that he is a partisan, and one interested in the question; and, ere he pens a dozen lines, tells us he feels confident "that we shall bear no more of it in a court of law." This may be said, in South Wales, to be not prejudicing the question, but we may say it is very like it. We find that Mr. Wrey deems it necessary to defend the course he has taken—in doing which, he assumes false, or at least questionable, premises, for he says, as regards this discussion, "it entirely rests with Mr. Crane's advocates—such discussion being wholly unprovoked by the other side." Now, we would ask Mr. Wrey what evidence he can adduce from the "other side" to prove that the first letter did not emanate with them, and put forward as a trap? into which Mr. Hooper has, most unluckily, fallen.

Mr. Wrey sarcastically remarks on Mr. Crane being "written up" as a first-rate genius. Will that gentleman inform us what was the opinion he entertained of the "genius and industry" of Mr. Crane when he signed the requisition, some two or three years since, inviting Mr. Crane to a public dinner, to congratulate him on the success of his patent? What new light has since broken in on Mr. Wrey we know not, but that his opinions are changed is quite manifest. Possibly, as in the case with the anthracite and bituminous coal being found in one and the same seam or bed, but disturbed and changed in their properties by some internal commotion, "having been subjected to great heat, and, at the same time, enormous pressure, until (to use a familiar expression) the fat has been roasted out," so we may suppose Mr. W. Long Wrey, of 1837, is the identical gentleman as the Mr. W. Long Wrey of 1840, only somewhat changed by "some internal commotion." The gratitude of Mr. Wrey is, we fear, something like the description he gives of Mr. Crane's patent—mere "moonshine"; however, we do not propose entering into the merits of the question, nor of Mr. Wrey's letter, as each will be subjected to a decision from which there is no appeal—the one that of a jury in a court of law—the other that of public opinion. We cannot conclude without again expressing our regret that this important question, now before the Law Courts, should form subject of controversy through the medium of the press. Our object, in giving insertion to the above letter, as also the one subjoined, addressed by Mr. Wrey to the *Cambrrian*, of the 15th inst., is, that we may render all the information in our power. Mr. Wrey, it will be seen, acknowledges himself to be an interested party, in upsetting the patent of Mr. Crane; and, if we mistake not, that gentleman's partisanship, in favour of the Neath Abbey Company, was evinced by his visit to London to give evidence in the cause. If we are right in our supposition that such was the case, we would ask that gentleman—is it even decent to appear as a controversialist, in discussing the merits of a question, the legal construction of which mainly to depend on the evidence which may be afforded by himself, and other witnesses? The opinion we entertain of Mr. Hooper's letter is already before our readers, and we regret that a gentleman of his standing and ability, more especially in the peculiar position in which he is placed as Mr. Crane's solicitor and legal adviser, should so far have committed himself. Had he consulted Mr. Crane for common sense advice, as that gentleman does Mr. Hooper for legal assistance, we think we might safely arrive at the conclusion, that the client would have displayed better judgment than the lawyer. With these remarks, which have been curtailed to length we did not content, we must close all further notice of Mr. Crane's patent. The subject of the use of anthracite, without respect to private interest or squabbles, will ever have our best attention; but letters such as we have felt it our duty to insert in our columns, we regret to say, reflect but little credit on the writers, who, by their advocacy, defeat the very end they have in view. We are obliged to our correspondent for the information his letter furnishes, and, had he shown himself less the partisan, we should have been better pleased.]

TO THE EDITOR OF THE CAMBRIAN.

Sir.—The "anthracite" question is one of great local interest, and has for some time attracted much observation and speculation. This, together with the circumstance of my having embarked largely in anthracite property, must form my excuse for troubling you with a few remarks on a letter which appeared in your paper of last week, signed "Francis P. Hooper."

I was not aware, until Mr. Hooper's letter appeared, that "Neilson's patent" was invalid, because the discovery of hot-blast had been previously openly communicated to the public by the Messrs. Dixon. That such is the fact, I am delighted to hear from such authority; but how upsetting Mr. Neilson's patent will assist Mr. Crane, I am at a loss to discover. The state of the case appears to me to be simply this—the public are entitled to the use of hot-blast in an iron furnace, through Messrs. Dixon's frank communication, without fee or reward, or by Mr. Neilson's patent, if they choose to pay for it. Now, what is it they are entitled to? Why, the use of hot-blast in an iron furnace, let that furnace contain what coal it may.

The first application of hot-blast was a discovery. After it had been used in a furnace containing coal of one mineralogical character, it can no longer be a discovery or invention using it with coal of another character, or otherwise we may have fifty inventors, with as many patents, for every little variation there may be in the mineralogical character of the coal used. As well might it be said (supposing charcoal to be used as formerly, which was usually made of oak wood) that it was a discovery, and an invention entitled to a patent, using charcoal made of ash timber.

Let us now inquire if this be a new manufacture. Mr. Crane has made iron by a combination of hot-blast and pit-coal. Is there any novelty in that? But, say Mr. Crane and his advocates, the pit-coal I use is of a different mineralogical character, and is called by a different name from that generally used, and therefore are entitled to a patent. Surely "law" cannot so far get the better of common sense as to call this an invention; and, as to a new combination of old materials to a new and useful purpose, "I shall shortly expect to hear of a patent for drawing a patent cork with a patent cork-screw, with about as much ground to originality. It is evident from Mr. Hooper's letter that Mr. Crane's only chance of success is, to prove that anthracite is as far separated from all other coal, as to bring its use, in combination with hot-blast, in the making of iron, under the denomination of "a new manufacture."

I take it for granted, that Mr. Hooper has not had leisure to make himself intimately acquainted with the geological structure of the South Wales coal basin; but, as I have had peculiar opportunities of studying both the geology of the anthracite district, and the character and peculiarities of the coal itself, long to inform him of a fact, which may give him a new light upon the subject—it is this, anthracite and bituminous coal are part and parcel of the identical same seam of coal. Of this there can be no doubt, as I shall proceed to show. In that portion of the coal basin from the Vale of Neath to Kidwelly, all the seams of coal (above twenty) along the north crop are anthracite, or carbonaceous coal; they descend a considerable depth under the surface, and rise again in Gower, forming the south crop of the same seams, and are there highly bituminous. It follows as a consequence, that the change takes place at some point between the two crops, in a north and south direction, or on the line of dip. That point has never yet been discovered, probably on account of its great depth, but in an east and west direction the point of change has been found, and is, at the well-defined grand fault in the Neath Valley, known as the Dinas Rock. There the seams, which are anthracite on the west side of the fault, become (slightly) bituminous on the east side, becoming more and more so as they extend east, until they become highly so at Pontypool; and, on the other hand, as they extend westward towards Kidwelly, the coal becomes more purely carbonaceous, evidently proving that the great convolution which occasioned the appearing of the lime rock through all the superincumbent strata, is the immediate occasion of the change in the character of the coal, and that anthracite is not, as has been generally supposed, a separate formation; but is the very same seams of coal, so acted upon and changed in the great laboratory of nature, until it is converted into a pure native mineral charcoal, termed by mineralogists an-

anthracite. If I have proved to the satisfaction of your readers, that anthracite and bituminous coal are one and the same seam, I may say Q. E. D.

It does, therefore, appear to me, that there not only is "a shadow of a doubt" that Mr. Crane's is a new manufacture, but that the question is overruled with thick fog, and dark clouds too, so dense that Mr. Crane is never destined to see the golden sun of wealth through them, whatever sum of money he may spend in law charges.

I cannot conclude without expressing an opinion, that every anthracite owner is particularly beholden to Mr. Joseph Price, for the very spirited manner in which he has upheld our rights and interests.

I am, Sir, your obedient servant,

Thornhill, Swansea, Sept. 15.

W. LONG WREY.

#### VENTILATING MINES.

TO THE EDITOR OF THE MINING JOURNAL.

Sir,—I have long wished to communicate with you on several matters affecting our mining and other interests. The late excessive postage was a high tax on provincial correspondents with metropolitan papers. My practical postage plan (originally suggested in principle, without details, by Mr. Rowland Hill), which has evidently been pirated, and applied to all the other stamps, or envelopes, will enable us now, however, with little expense, to tell one another what we think, in order that we may think and act more alike all over the quondam.

Miners in Cornwall, as well as in Wales, are obliged to work in air too foul for candles to burn upright. The foulness of their atmosphere may be the principal cause of the palpitations which miners suffer from ascending and descending the ladders. The velocity principle—the curse, as well as the blessing, of modern times—is another cause, doubtless, of the pulmonary complaints to which those who work in deep mines are subject.—"A foot at forty is a fool indeed," but a miner at fifty is an old man indeed.

I am not sufficiently acquainted with the nature of gases to state matters scientifically. Is it not invariably found that the foul air at the bottom of mines is heavier than atmospheric air, allowing for difference of levels? If so, would it not be the most efficient mode of ventilation to withdraw the foul air? Without some mechanical or chemical means applied for that specific purpose, the bad would only be stirred by the injection of fresh air, or the falling of a stream of water, &c., as now practised. For drawing the air out, or up, a large circular double bellows might be used, of any dimensions, whose hinges should be in the line of the diameter, made air-tight by a strip of leather—sail cloth, instead of leather, for the covering, to save expense; or a pipe might be made to convey the air from the bottom of the mine (to which the heaviest air or gas would always flow, as water does to the sump) to the engine-fire, through which it would be forced up the stack by its own rarification and the superincumbent pressure of the atmosphere on the column in the shaft. If it should be found that the bad air injured the fire, or that there was not sufficient draft, a pipe might be made to ascend from the bottom of the mine to the top of the stack, through the inside of the chimney. To pass it through the boiler fire would melt the pipe, and if it did not, would subtract a portion of the calorific.

Our miners, though all of them are not "wicked, do not live out half their days." It is true, that many of them injure their constitutions by the fictitious excitements and enticing allurements of intoxicating drinks, especially malt liquors. It is time that something should be done to give the miner a wholesome atmosphere, as well as to drive him from the delusion that stimulation is strength. Hereditary consumptions are now become common among miners' families, whilst mining adventurers and lordlings pay more regard to the breed of cattle than of man. In the long run it will be found to be the interest of the rich to aid the poor, whose labour is their capital.

"Princes and lords may flourish or may fade,  
A breath may make them as a breath is made;  
But a fine peasant, our country's pride,  
When once destroy'd, can never be supplied."

I am, Sir, your's, respectfully,

ALFRED T. J. MARTIN.

P.S.—The engine pump-rod might work the large double bellows, with two clacks to open outwards; the pipe to communicate with the bottoms of the two semi-circular planes, or halves of the whole. The top to consist of two inverted inclined planes, on one circular ground, rising inwards, towards the diameter, to the height of nearly half the stroke. It may be set up perpendicularly or horizontally. Fresh air may be supplied by one-half through another pipe, or by both *semis* through one pipe, with two branches at top.

[We are obliged to Mr. Martin, and, if he pleases, to Mr. Rowland Hill, for the communication of the former gentleman, although he has allowed many weeks to pass by ere he availed himself of the facilities afforded by cheap postage. We are glad to find, that even to the Land's End the subject excites a lively interest, and most gladly shall we give insertion to all communications (more especially from practical men) which may in any way tend to the development of the best plan for the prevention of loss of life.]

#### ON ASCERTAINING THE FALLS OF RIVERS OR STREAMS.

TO THE EDITOR OF THE MINING JOURNAL.

Sir,—I shall feel obliged if you could inform me, through the medium of your Journal, the simplest and most accurate method of ascertaining the falls of rivers, or streams, in connection with water-wheels, of the several denominations.

Your's, respectfully,

AN OLD SUBSCRIBER.

[We insert the letter of "An Old Subscriber," but must confess we do not understand his question. The simple mode of ascertaining the falls of rivers or streams, is too well known to require any reply through the medium of our columns; to its "connection with water-wheels, of the several denominations," this is a matter too abstruse. Let our correspondent put a plain question, and he may obtain a plain answer; but the several denominations of water-wheels, and the varied falls, to say nothing of rapidity of stream and body of water, are such as to render it impracticable to give a general answer to our correspondent's very general question.]

CHESTER AND BIRKENHEAD RAILWAY.—This line was opened on Tuesday last, when the first train started from the station at half-past ten o'clock. Several of the directors and their friends occupied four first-class carriages, and four second-class were filled by respectable individuals. This train returned to Birkenhead at two o'clock, and at four, a train consisting of eight first, and the same number of second-class carriages, left Birkenhead for Chester. It was drawn by two engines, and left the station amidst the firing of cannon and huzzas of the multitude assembled. This railway opened for the general conveyance of passengers and goods on the following day.

TAFF VALE RAILWAY.—We understand there is every prospect of this line being opened for traffic passengers as far as Newbridge, in the early part of the next month. The permanent rails are nearly completed. Two locomotive engines are ready at the station, and a train of carriages daily expected from Bristol.

SPONTANEOUS GAS COMPANY.—The directors of this company are actively prosecuting their unprecedented project. Pipes are casting, and ere many weeks have passed away, the Newcastle and North Shields Railway will, in all probability, be lighted from the great natural reservoir of gas at Wallsend.—*Northern Times*.</



